FEBRUARY, MDCCCLXI.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCXXV.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

TO CORRESPONDENTS.

Nesting of British Birds. — Having compiled, from various sources, and for my own use, a tabular account of the nesting of birds in Britain, and being almost daily compelled to have recourse to it for the purpose of answering questions addressed to me as Editor of the Natural-History departments of several periodicals, I have come to the conclusion that the said account would be useful to students of British Ornithology, and therefore intend dividing the same into four nearly equal portions, to be published in four consecutive numbers of the 'Zoologist,' namely, those for March, April, May and June, thus embracing the period of the nesting of birds in this country. The sources whence my information has been obtained are—

1st. Personal observation during my long residence at Godalming, and in occasional tours in Ireland, Scotland, &c. &c.
2ndly. Col. Montagu's 'Ornithological Dictionary.'
3rdly. Mr. Selby's 'Illustrations of British Ornithology.'
4thly. Detached notices in the 'Zoologist.'
5thly. Hewitson's 'Oology.'
6thly. Mr. Yarrell's 'History of British Birds,' that distinguished naturalist having in several instances added to the fund of recorded information.

The list is arranged thus:—

1. English name.
2. Latin name.
3. Situation of Nest.
4. Materials of Nest.
5. Number and colour of Eggs.—*E. N.*

Occurrence of the American Whiteheaded Eagle (Falco leucocephalus) *in Somersetshire.*—The following notice of the appearance, in Somersetshire, of the whiteheaded eagle may be interesting to some of the readers of the 'Zoologist.' It is extracted from a letter just received from my son:—"Yesterday a curious ornithological event happened here. I was going to shut the rabbit-house door, when all the fowls came half flying down the yard, and hurried into the house. I guessed there might be a hawk, and, seeing the sheep also run under cover, I looked up, and there, not very high, but near enough for me to hear the flap of his great brown wings, was a whiteheaded sea eagle! Perhaps he was hungry, and had not met with his feeder the fish-hawk, and so was forced to come inland. He hovered awhile over our farm, and then turned his white head, and with one great flap of his wings went off over Bleadon Hill, and disappeared in the red sunset. I suppose he went to the Bristol Channel to fish for himself."—*Theodore Compton; January* 25, 1861.

Records of Rarities in Ornithology. — During the late frost rare birds occurred all over the country: a great number of these have been sent me for examination, and particulars will appear in the March number. I wish to impress on my readers the importance of communicating at once to the 'Zoologist' records of all such occurrences.—*E. N.*

The 'Insect Hunters.' — A Second Edition of the 'Insect Hunters' is in the press: the publisher and price will be advertised on the wrapper of the March 'Zoologist.' The stock of this little book has been exhausted more than two years, and I had concluded never to reprint it; but find it inconvenient to have so frequently to write explanatory letters as to its being "out of print."—*E. N.*

☞ A great number of communications and notices of books of necessity stand over.—*E. N.*

Death of the old Lion at the Zoological Gardens, Regent's Park.—I regret to have to record the death of a large and very valuable animal. Mr. Bartlett, Resident Superintendent of the Zoological Gardens, kindly sent me notice that the old patriarch lion, who has so long been an ornament to the carnivora-house and the admiration of visitors, had died very suddenly; and at the same time he invited me to be present at the examination of the body. It appears that the lion was quite well on Saturday night last, and ate his food heartily as usual; but when the keeper came on Sunday morning, behold! the poor beast extended full length, dead and stiff upon the straw, having apparently died without a struggle. Alas! poor lion. On arriving at the Gardens on Monday morning I found that the skin had been removed, which I much regretted, as a dead lion forms an admirable and rarely-to-be-met-with study for artists. However, having hauled the huge skinless carcass upon a table, in company with a few scientific medical gentlemen, we carefully searched for the cause of death, and found that both lungs were exceedingly congested, and almost impervious to air. We also ascertained that there was some appearance of congestion about the base of the brain; and the verdict was death from congestion of the lungs, caused probably by the excessive cold. Dr. Crisp, who was present, remarked how curious it was that all the cat tribe are so rapidly affected by the cold, and that in a few hours they fall victims to its effects.—*F. T. Buckland, in the 'Field' of December* 29, 1860.

Notes on the Fauna of Shetland. By W. D. Crotch, Esq.

Having spent the months of August and September in Unst, the most northern of the Shetland Isles, I am tempted to give some record of observations and captures made during that period; incorporating much information liberally afforded me by my kind friend and host Dr. Edmonston, who is too well known to zoological science to bear panegyric from me. However, the present list, especially as regards the Entomology, is most meagre; this is in part owing to the ungenial character of the past summer, but I hope in the following spring to make great additions.

The Mammalia of Shetland are few in number, viz.:—

Lutra vulgaris. Common, affecting especially the sea coast.

Phoca vitulina. Numerous, though shy from recent persecution.

P. barbata. This fine species is sadly diminished in numbers, and not more than one or two pairs now remain in their old haunts at Burrafirth.

Mus sylvaticus, M. musculus and M. decumanus. The latter has not, apparently, spread beyond Lerwick, from the absence of piers, by which its landing in these islands might be effected from the various vessels.

Lepus timidus. On the mainland only.

L. cuniculus. Common. All that I observed near Balta Sound had a small white star in the centre of the forehead.

Equus Caballus. These hardy little fellows were probably imported from Norway, and are introduced here to call attention to a singular fact in their economy, which is, that during the winter, when grass is scarce, they resort to the shore and eat the sea-weed; at the same time the capacity of the stomach is much reduced, and the whole viscus contracted to half its ordinary size. It is needless to add that at this time they are incapable of work. An analogous instance of the adaptability of the stomach is given in reference to Larus argentatus.

Bos Taurus. Shetland cattle have also a strange peculiarity of diet, feeding freely on the young of what are called "sillocks," when, as is often the case, they are caught in quantities far greater than sufficient for human consumption.

Phocæna communis. Locally called "nisack" or "sprite." Can this *soubriquet* have arisen from its propensity for *gobbling* the herrings?

P. Orca. This species is addicted to astonishing small craft by its sudden appearance alongside, of which habit we had ocular demonstration.

P. melas. The caain' or driving whale continues to exercise its suicidal vocation at intervals, and to the great benefit of the fishermen; but we were not so fortunate as to witness any instance.

Monodon monoceros. I know of no recent examples.

Physeter Tursio. Probably the species indicated by the term "finner," from the prominence of its dorsal fin.

Balæna mysticetus. Of rare occurrence.

Balænoptera Boops. This also is a "finner," and of frequent occurrence.

An arctic fox was also lately an involuntary denizen of the mainland; but, a price having been set on his head, his existence there came to a rapid end, but not before he had shown a most natural appreciation of Shetland mutton.

The species of birds are numerous; principally, however, as seasonal or occasional visitants. Some stress has been laid on the fact that since the introduction of shrubs into some of the gardens of this treeless region several of the smaller insessorial birds have appeared; but though their stay in the islands might be influenced by these additions to the native flora, yet their first visits must have been caused either by migratory instinct or stress of weather, and in many instances doubtless the former influence was at work. I have, when far distant from land, observed various finches flying seaward in the teeth of a strong breeze, and this not at any definite period of migration. By this vagrant impulse only can I account for the occurrence of such birds as the hoopoe, rosecoloured pastor and turtle dove, in the most northern of the Shetland Isles, and in the beginning of autumn.

Falco chrysaëtos. Occasional, now rarely seen.

F. albicilla. Permanent. Eyries still exist on the Noss Hermaness, Rona's Hill, Graveland and Fetlar.

F. haliaëtus and F. islandicus. Occasional.

F. peregrinus. Permanent.

F. subbuteo. Summer.

F. æsalon. Permanent.

F. tinnunculus. Permanent. This and other members of the hawk tribe are locally designated "maalin."

F. palumbarius. Occasional.

F. nisus. Permanent.

F. milvus. Occasional.

F. buteo and F. æruginosus. Winter.

F. cyaneus. Permanent.

Strix bubo. Occasional.

S. brachyotus. Occasional. Though this species breeds in Orkney, I have not heard of its doing so in Shetland.

S. flammea. Occasional.

S. aluco. Occasional in summer.

S. nyctæa. Formerly breeding in Unst, but now a rare visitor. Mr. Gatherer, of Lerwick, kindly gave me the head and foot of one of these fine birds which had drifted ashore in a decayed state. The local name is "katyogle" or "haarfang."

S. passerina? Occasional. Should not this be S. Tengmalmi, which is the northern species, S. passerina not occurring, according to Temminck, above 55 deg. N. lat.?

Turdus viscivorus, T. pilaris, T. iliacus and T. musicus. Occasional.

T. merula. Permanent, at least *in intention;* the cats, however, usually interfere with this arrangement, the only shelter being in gardens attached to dwellings.

T. torquatus. Occasional.

Sylvia rubecula. Winter. Can this untimely appearance be accounted for by the comparative mildness of Shetland winters, or this bird's well-known tolerance of cold?

S. œnanthe. Summer. This is, if not the most numerous, at least the most certain of notice among Shetland birds, as it may be seen at every step. It is almost always called the "stonechat."

S. trochilus. Occasional, summer.

S. rufa? Some little doubt exists as to this species.

S. atricapilla. Occasional, summer.

Regulus cristatus. Occasional, winter, spring and autumn.

Parus major and P. cæruleus. Occasional, winter.

Bombycilla garrula. Occasional, autumn.

Motacilla Yarrellii. Summer; annually migratory. This bird has of late become a regular summer visitant.

M. flava. Occasional, summer.

Anthus pratensis. Annually migratory. Appearing in small flocks in summer.

A. obscurus. Permanent. Most abundant. Commonly called "teeteck."

Alauda arvensis. Permanent.

Emberiza nivalis. Annually migratory. This year we shot specimens as early as September 19th. The local name is "snawfool."

E. miliaria. Permanent, with accessions from October to April.

E. citrinella. Occasional.

Fringilla cœlebs. Annually migratory. Both sexes appear in autumn, and some occasionally remain in winter.

F. montifringilla. Winter.

F. domestica. Permanent.

F. chloris. Winter.

F. spinus. Occasional, winter.

F. cannabina. Permanent?

F. linaria. Occasional.

F. montium. Permanent. This, the "lintie," is the commonest linnet, occurring in all the valleys.

Loxia curvirostra. Occasional, summer. Several specimens remained some time at Halligarth, Dr. Edmonston's residence, but fell at length before the unceasing wiles of a cat, who, by the way, has slain more rare species than her progeny could be worth for ever.!

Sturnus vulgaris. Permanent and abundant.

Pastor roseus. H. Saxby, Esq., had the good fortune to shoot a young male of this species at Halligarth during our stay. On dissection I found the stomach filled with fragments of Geotrupes putridarius.

Corvus corax. Permanent. A deadly enemy to lambs and ponies. Attacking them when on the low diet which winter affords, we slew fifteen, which had the effect of rendering them more wary, but not, apparently, less numerous.

C. corone. Occasional, summer. Rarely seen.

C. cornix (hoodie). Permanent. Common, bold and handsome, but decidedly mischievous.

C. frugilegus. Occasional, spring.

C. monedula and C. glandarius. Occasional.

Picus martius. A specimen was killed at Belmont, in Unst. I heard also of another species said not to be P. major, but like it, which as yet I am unable to trace.

Troglodytes europæus. Permanent.

Upupa Epops. Occasional, summer. One rose before me in the dusk, and set my thoughts wandering among unknown woodpeckers, which a long chase and frequent glimpses did not then dispel, as the bird had an unaccountable facility for scaling the stone walls or "dykes" which adorn the country in all directions; however, the morning disclosed the species in the same field or "park," to which, when disturbed, it always returned, with a wavering flight like that of Arge Galathea, which indeed it much resembled. It seemed most at home on the ground, always keeping close to the "dykes."

Cuculus canorus. Occasional, summer.

Coracias garrula. Occasional.

Hirundo rustica and H. urbica. Breed occasionally.

Cypselus apus and Caprimulgus europæus. Occasional.

Columba livia. Permanent and numerous.

C. turtur. I shot one at a snap shot, in mistake for a hawk, while dashing over the garden wall at Halligarth, September 9th. I believe this is the second example of its occurrence in Shetland.

Glareola torquata. Not since 1812.

Charadrius pluvialis. Permanent. In flights of many thousands in autumn, but many migrate. These birds descend to the valleys at dusk, when they may be easily approached and shot if the sportsman can see them, which, however, is only practicable when they rise, and this they are averse to do, preferring to run, uttering all the while their plaintive cry, close at hand but totally invisible.

C. hiaticula. Permanent.

Vanellus melanogaster. Occasional.

V. cristatus. Permanent, and on the increase, a pair or two only being the stock a few years since; now there are several respectable flights.

Strepsilas interpres. Permanent?—it seems now only seen occasionally in summer.

Calidris arenaria. Occasional, autumn.

Hæmatopus ostralegus. Permanent.

Grus cinerea. Occasional, under stress of weather.

Ardea cinerea. Occasional, but often seen; we saw two.

A. minuta. Dr. Edmonston saw an example of this species, a few years since, in winter.

A. stellaris. Occasional, autumn and winter.

Ciconia alba. Has occurred twice.

Platalea leucorodia. Has been shot and seen in winter.

Numenius arquata. Permanent. Not common in Unst.

N. phæopus. Permanent. Oftener heard than seen.

Totanus calidris. Occasional, and not numerous.

T. hypoleucos. Summer. We saw specimens, but at that time I was not aware that this species was not known to visit Shetland, and consequently none were shot.

T. glottis. Occasional, summer.

Recurvirostra avocetta. One seen by Dr. Edmonston.

Himatopus melanopterus. Likewise seen by the Doctor, who is not so inhospitable to strangers as ever to desire to kill them merely because they arrive but seldom.

Limosa rufa. Occasional.

Scolopax rusticola. Once shot on Balta Island. Surely it must occur more frequently.

S. gallinago. Permanent, and very numerous.

S. gallinula. Annually migratory, winter.

Tringa subarquata. We shot three specimens of this pretty species. Its mode of tripping rather than running is very elegant. The stomachs contained the larvæ of beetles.

T. Canutus. Summer; annually migratory. Possibly this bird breeds in Shetland, but we did not see them till September.

T. minuta. Occasional, autumn. We saw and shot them in company with the curlew sandpipers, far from the shore. They were very tame, and allowed approach and observation.

T. variabilis. Permanent. All the Tringas are called locally "plover pages."

T. maritima. Spring.

Gallinula crex. Summer; annually migratory.

Fulica atra. Rare on the lochs.

Phalaropus platyrynchus. Autumn. We shot one, which my cousin supposed to be an oddly-marked dunlin; he fired and the bird rose, but seeing me dropped on a sheet of water, and commenced swimming: after admiring it for some time we provoked it to fly, when I shot it.

Anser ferus and A. segetum. Winter.

A. albifrons. Occasional, winter.

A. leucopsis. Winter.

A. brenta. Winter. The "Horra goose," from Horra Sound, where it is very numerous.

Cygnus musicus. Winter.

Anas tadorna. Occasional.

A. acuta. Winter. Not uncommon.

A. boschas. Permanent.

A. querquedula. Summer, occasional.

A. crecca. Permanent. I shot several in August, in capital condition.

A. Penelope. Winter.

A. mollissima. A few remain to breed.

A. spectabilis, A. fusca and A. perspicillata. Occasional.

A. ferina. Winter.

A. marila. I have this species recorded as occurring in summer occasionally, but I doubt its breeding in Shetland.

A. fuligula. This species also appears to have occurred in summer.

A. glacialis (calloo). *The* duck of Shetland, occurring in large flocks on the numerous voes or inlets.

A. clangula. Winter, but it is supposed that some remain during summer.

Mergus serrator. Permanent and plentiful, but shy.

M. merganser. Autumn; breeding in Orkney, if not in Shetland.

Podiceps cornutus. Winter and spring. Rare.

P. minor. Winter.

Colymbus glacialis. Winter, and sometimes permanent.

C. arcticus. Has become very rare.

C. septentrionalis (rain goose). Permanent, but much diminished n numbers.

Uria troile (longie) and U. Brunnichii. Permanent.

U. lacrymans. Guillemots with the bridle mark occur, which, I uppose, are to be called U. lacrymans.

U. grylle (tyrtie). Permanent. The whiter plumage was assumed his year by October, but not quite universally.

U. alle. Winter.

Mormon fratercula (tammy-norie). Summer. Permanent? Very few remain after the breeding season; and there appears reason to believe that some other species or well-marked variety exists which appears in winter.

Alca torda (willock). Summer.

Carbo cormoranus (loring) and C. cristatus (scarf). Permanent.

Sula bassana. Occasional, but tolerably common after the breeding season.

Sterna arctica (piccatarie). Summer.

Larus Rossii? A gull, the plumage of which was tinged with rose-colour, was shot some years since in North Unst; possibly it belonged to this species.

L. ridibundus. Summer.

L. tridactylus (weeg). Summer and autumn, in millions.

L. eburneus. Winter. Sent to the Edinburgh Museum, by Dr. Edmonston, in 1822.

L. canus. Permanent.

L. leucopterus. Winter. This bird, which bears the same relation to L. glaucus as L. fuscus to L. marinus, was first noticed in Britain by Dr. Edmonston, and is still to be seen in Shetland, though there is no reason to suppose that it remains to breed.

L. fuscus (said-fool). Permanent.

L. argentatus (white maa). Permanent. To exemplify the relative value of morphological and anatomical characters, it may be mentioned that the digestive organs of this bird during the summer, when its food is fish and animal matter, are membranous; but in early spring, when their diet is almost wholly of some description of corn, they are provided with an adequate gizzard, quite sufficient, were that organ alone in view, to locate its owner among the Gallinaceæ; Let this habit become permanent, and a very pretty specimen of mutation would be the result.

L. marinus (baagy). Permanent.

L. glaucus. Winter. Dr. Edmonston, who first noticed this species, formerly observed large flocks where now a chance specimen only can be seen.

Lestris catarractes (skua or bonxy). Summer. A few years since, some greedy itinerant collector shot down all the specimens of this fine species, except a pair or two, which their boldness during the breeding-season rendered an easy matter. It is a pity he was not made to smart for it on the occasion; but as these birds have, by the appointment of a keeper, been increased in numbers, though at great expense, I am authorized to state that future visitors to Hermoreness will not be allowed to wantonly destroy these birds.

L. Richardsoni (shooy). Summer. We obtained specimens in all states of plumage, from the kestrel-marked young to the white-breasted and ringed adult; but there were differences which it would be premature to allude to at present, pointing apparently to some distinction of species. On dissection the old birds were found to be filled with heath-berries, but the young had fed on fish.

Procellaria glacialis. Occasional.

Puffinus Anglorum (leirie). Summer. Breeds in rabbit-burrows and crevices.

Thalassidroma pelagica (speney). Permanent. We saw one on an inland piece of water, towards evening, as if about to roost, which, unless the bird was injured, seems strange.

On reviewing this list we find 36 permanent species, and about 16 summer and 25 winter regular visitors; in all 158, to which a few may still be added.

W. D. Crotch.

[I cannot allow this paper to appear in the 'Zoologist' without expressing my regret that my correspondent should take no notice of the admirable and very careful 'Fauna of Shetland,' published in previous numbers of the 'Zoologist' (Zool. 459, &c.), by the late lamented Mr. Thomas Edmonston. Mr. Edmonston's long residence in Shetland, his zeal and knowledge as a naturalist, and his untimely fate, all combine in demanding this tribute to his memory.—*Edward Newman.*]

Occurrence of the Waxwing (Bombycilla garrula) *in Banffshire.*—I have just had brought me a very fine specimen of this pretty bird, and very uncertain visitant here. It was obtained on New Year's Day, at Gardenstown, in the parish of Gamrie. Eleven years ago one was procured in the same locality, though under very dissimilar circumstances, the present one having been shot; the other came down a chimney. See Zool. 5267.—*Thomas Edward; Banff, January* 5, 1861.

[The occurrence of the waxwing has been mentioned twice or thrice lately in the 'Field' newspaper, but not in a way that I can venture to quote.—*Edward Newman.*]

On the Occurrence of American Birds in Europe.

By Herr H. Gätke.*

The route by which American birds proceed to Europe is, as Yarrell justly terms it, "an interesting problem, of difficult solution." For years this solution has occupied my attention; and although I have myself always been convinced that such of these entirely American birds as occasionally visit Europe *do* reach us by a passage across the Atlantic, this remains a mere opinion, carrying no weight if unsupported by facts, or by at least sufficient argument to make good the question at issue.

The mere comparative review of the occasional visitors among the birds of Great Britain and of Germany will lead to the conclusion that the route of American birds to Europe must needs be a voyage across the Atlantic, for almost all the additions to the birds of Europe, of species purely American, have been obtained in Great Britain, which could not have been the case if they had proceeded in any other than an eastern direction; whilst the additions by Germany, furnished to the European Ornis, consist nearly entirely of birds belonging to Asia.

However striking the result of such a comparative review may be, one question will always present itself, namely, whether it be possible for a bird to sustain an uninterrupted flight sufficient to carry it across the wide expanse of the Atlantic. I am convinced that this is possible, and shall endeavour to prove such possibility.

This purpose necessitates a measure for the rate of locomotion of a bird through the atmosphere. For a long time I vainly endeavoured to obtain reliable data upon which to found an estimation of the rate of flight of birds, when at last I hit upon a passage in Yarrell's 'British Birds,' ii. p. 295, where, speaking of the carrier pigeon, he mentions the fact of one of these birds having performed a flight of 150 miles in an hour and a half: it was on the 24th of June, 1833; the pigeon flew from Rouen to Ghent; sixteen others flew the same distance in two hours and a half.

Wonderful as this instance of swiftness of the flight of a bird may appear, it certainly is still surpassed by birds when on their periodical migrations; for the above feat was accomplished by an individual hatched and reared in at least semi-confinement, whose powers of flight consequently could not be nearly so well developed as in a bird grown up wild and free, which nearly every hour of his life has to depend on the utility of his wings, either for the purpose of overtaking its prey, or for that of escaping from being caught.

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* As translated in the 'Proceedings of the Zoological Society' for 1860, p. 105.

Laying down, therefore, 100 geographical miles per hour as the rate of flight of birds during distant migration, one keeps—after the above—quite within safe bounds; and, at this rate, the 1600 geographical miles from Newfoundland to Ireland would be effected in sixteen hours. No ornithologist will doubt for a moment the capability of a healthy bird to sustain a flight of that duration; during the long summer days many of the Hirundinidæ are on the wing for as long a period, and although their flight may be interrupted by occasional rests of very short duration, it is performed in the lower, less buoyant atmosphere, and consists of so many evolutions that most decidedly it must on the whole be much more tiresome than the straight path, in the pure upper regions, of a bird bent on the performance of one long pilgrimage.

Even supposing that birds become exhausted before accomplishing the passage across the ocean, observations I have made in the vicinity of this island have fully convinced me that small birds, such as thrushes, buntings, finches, &c., are able to rest on the sea, even when a little in motion, and afterwards to resume and pursue their flight with fresh vigour. Of this I shall give the particulars further on; but, for the present, I return to the above question, by giving an instance of endurance on the wing of a species which, with pretty good certainty, may be said every spring to perform, in the period of one night, a flight of more than 1200 geographical miles, namely, from Egypt to Heligoland; the bird in question being a particular form of bluethroated warbler (*Sylvia cærulecula*, Pallas).

This pretty little bird, noted not at all either for rapidity or great endurance of flight, has its summer quarters in the high northern latitudes of Sweden, Finland and Siberia; whereas during the winter months it is staying principally in Egypt. On its spring migration, which takes place during the earlier half of May, the first place north of Egypt where it is to be found with certainty in pretty considerable numbers is Heligoland. Nowhere in the whole intermediate distance is it met with but as a great rarity, not even on the neighbouring north coast of Germany; whilst here in Heligoland I have oftentimes obtained it in such numbers that more than twenty of the finest adult male birds have been bought by me in one day, and perhaps the same number by the bird-stuffers of the island. The foregoing admits of one conclusion only, namely, that this little bird performs the passage from Egypt to Heligoland in one uninterrupted flight, travelling, as many of the smaller Insectivoræ do, during the night, starting towards sunset and arriving here about sunrise or a little later, the time occupied being from twelve to fourteen hours. The distance from Egypt to Heligoland being about 400 geographical miles less than that between Newfoundland and Ireland, the rate of flight of this delicate little bird may be put down the same as that rendered by the above-mentioned carrier pigeon, and consequently furnishes a further proof that a healthy well-flying bird is able to cross from the nearest point of America to Ireland without any rest or extraordinary support whatever.

In the foregoing I alluded to the aptness of non-natatorial birds of resting, in case of exhaustion, on the sea, and of rising from it after having recovered sufficient strength to resume their flight, and that at times, too, when the water is far from being unruffled. This statement is based on the following observations. One day, when out in a boat shooting, about two or three miles from Heligoland, I observed a very small bird swimming on the water. Neither the boatman nor myself being able to discern what species it belonged to, we became very eager to secure the stranger, conjecturing that it would turn out to be some wonderful rarity. When preparing to fire I fortunately discovered that the expected prize was nothing but a song thrush! Immediately our desire to kill was changed into compassion: the "poor thrush" in so piteous a situation was to be "saved." But how great was our astonishment when, upon the approach of the boat, the bird, without any apparent difficulty, rose from the water and flew towards Heligoland in first-rate style! Another time we saw a snow bunting, evidently very much exhausted, because it was floating scarcely 500 yards from the island. At the approach of my boat this bird also very lightly rose from the water, but it was so weak that it had to resume its unnatural resting-place after proceeding about thirty or forty yards towards the rocks. We went after it again and for the third time, but with the same result, whereupon we refrained from all further attempts at forcing our well-intended assistance upon so obstinate a fellow, the more so as we entertained no doubts that after a little rest he would obtain a more solid footing without any help of ours.

I will give one more instance of the propensity in birds, in all my experience the most striking. This time it was a mountain finch which had been compelled to alight for rest on the water of the sea; it was about three miles east of Heligoland. When this bird was approached by the boat, it rose very easily, mounted into the air to a great height—as birds do when starting for their migratorial excursions—and then struck out steadily in a southern direction, without taking any notice whatever of the island.

Although I believe the foregoing to have proved sufficiently the possibility of birds being capable to cross on the wing from the United States of America to Great Britain, the greatest probability that they do so is still shown by the proportion the number of American birds in Great Britain bears to that of those obtained in the whole of Europe. Yarrell, in his 'British Birds,' 1845, mentions more than forty instances of that description; Tringa rufescens and Scolopax grisea having been obtained six times each! whereas Germany, Holland and France together offer but very few instances, some of which scarcely rest on good authority.

Heligoland seems to form a happy centre. Here the gulls of the Arctic Sea (*Larus Rossii* and *L. Sabinii*) meet the Nunidian crane, Grus Virgo, Lanius phœnicurus, and other African birds; whilst the United States send Mimus rufus and T. lividus, Sylvicola virens, Charadrius virginicus and others, to meet deputations from the far east of Asia, consisting of Turdus ruficollis and T. varius, Sylvia javanica, S. caligata and S. certhiola, Emberiza rustica, E. pusilla and E. aureola, Pyrrhula rosea, and a great many others.

All these birds, together with a great number of acquisitions quite as valuable for the European Ornis, *all captured on this island*, are preserved in my collection,—a collection which, although scarcely approaching to three hundred specimens, has, by Blasius, been pronounced to be "the most interesting between Paris and Petersburg."

Ornithological Notes from Felixstow, on the Essex Coast.—On the 7th of October, while at breakfast, I noticed a number of swallows passing the windows at short intervals, not in dense flocks but rather straggling, some over the land and some over the surface of the sea. I soon observed that they were accompanied by a few martins of both species, and that occasional large flocks of short-winged birds passed the windows also, and that *all* were travelling southward along the line of coast; not one solitary individual returned, or was seen moving in the opposite direction. The martins, however, which had nestled under the eaves of our dwelling, did not join them, but continued flitting about as usual. The short-winged birds were too distant to ascertain the species, but they were very numerous, and in close flocks, as if for mutual protection. The contrast between their feeble, jerking flight, and the easy, gliding motion of the chimney swallows, was very striking. This continued till about 10 o'clock A.M., when the migration (for such it undoubtedly was) ceased for that day. Of course I could not at all calculate the number of birds which passed in those two or three hours; but, seeing that there was never more than a very few minutes' cessation, if so much, and that often there was a widely-scattered flock of Hirundines and a very dense one of the others, I should think some thousands must have gone by. On the 8th I was earlier on the look-out, and noticed a similar tide of birds to begin flowing southward soon after sunrise, and to continue till about the same hour as on the previous day; the chimney swallow by far the most numerous. On the 9th and 10th the weather was less favourable, and much fewer birds passed; yet the same thing occurred to a limited extent, and continued, gradually lessening, up to the 20th, with the exception of one day (the 16th I believe), which was very stormy, and on which none were observed. On the 17th a very large flock of house martins almost covered a sloping warm roof of a farm-house at Walton, a mile distant, evidently preparing for their departure, yet basking in about the warmest sunshine we had known all the year. I spoke of the migration past our window as continuing up to the 20th of October. On this day a great multitude passed by, but by far the larger proportion were house martins, from which it would seem that this bird is rather the latest in leaving us. A few, and but a very few, were observed on the 21st. Not a solitary individual of the summer visitors was seen on the 22nd, 23rd or 24th, except that on the 23rd, on visiting the roof where such a multitude of martins had congregated on the 17th, two very feeble chimney swallows were perceived to have settled upon it,—decidedly late birds of this year, in too weak a state to attempt a flight to distant lands. All the resident martins had disappeared from our habitation on the 22nd, doubtless gone with later migrations to seek a warmer clime. Query, why should the birds pass in the mornings only, all symptoms of migration ceasing before 11 o'clock? If any individuals were observed after this time they were only to be seen hawking up and down as usual. It may be suggested from the foregoing observations that migration takes place gradually,—that reinforcements swell the tide of birds as it sweeps along the line of coast, and that these interesting summer denizens of our groves, our gardens and our habitations repair to the shore at the time of departure, and keep along the coast, crossing the estuaries, until probably they reach the Straits of Dover, where the Continent of Europe may be reached without much risk, and from whence but little of the mighty deep need be encountered in passing to the warm regions of Africa. On the 25th of October I saw six individuals of the chimney swallow on the wing, some distance from the coast, to all appearance in the act of migration. On the 12th I observed considerable flocks of skylarks arriving from off the sea. At first it did not strike me as anything unusual or strange; but, having noticed the same thing repeatedly since, I am inclined to think that there is an influx of these birds to our shores in the autumn, or how can we account for the immense flocks that cover our fields in the winter? I noticed also that they began their delightful song (to me they are the sweetest of all our choristers) about the first week in this month, and that it has continued to this day (the 25th), so that the fields resound with their music fully as much as in spring. The hooded crow has also appeared here within a few weeks in great numbers, and seems to be the prevailing crow in this locality. Five wild geese, probably Brent or bernacle, seen on the 17th, flying not far distant over the sea; and six geese on the 21st, also over the sea, but more distant. On the 25th I saw a flock of ducks, or of the duck family, at a distance over the sea. The last few days, viz., from the 21st to the 25th, I have observed the mountain sparrow. One was hopping about on the shore but a few yards from our feet, seeming very tired and hungry; I picked up one drowned, also one male chaffinch; I could not observe any wounds about them. Did they fail in reaching the shore while attempting to cross the German Ocean? I think Linneus and Gilbert White consider there is a migration of male chaffinches. Vast flocks of goldfinches and linnets are here. They appear to feed on the seeds of the thistles and other weeds which abound on the cliffs. One large flock, I believe of dunlins, I saw on the 21st. Once I observed, at a distance over the sea, some terns, as I apprehend from their slender proportions and the acute angle of their wings. Starlings were very abundant, also titlarks. On or about the 30th I picked up a second male chaffinch on the shore, apparently drowned. On the 3rd of November I noticed for the first time some fieldfares, on a hawthorn hedge in front of our lodgings; they were in company with a number of blackbirds, and after a time were seen with them seeking their food in the grass in the pasture adjoining. I have not seen them here since, and only a solitary one anywhere else. On the 4th, while walking with my brother in a meadow near the sea-shore, where a small rivulet runs by the side of a hedge, my attention was arrested by a rustling noise among the overhanging brambles; and, turning my eye to the spot, I saw a bird endeavouring to force its way through them. At first I thought it was a little bantam hen, and waited till it made its exit, during which process I could easily have taken it in my hand. My surprise was great on seeing it take wing—a woodcock. It flew heavily about fifty yards, and again alighted in the little brook, allowing me to approach within about five yards before it rose, when it crossed a small grove and dropped on the other side. We did not pursue it further, nor did we see another, which we rather expected, as this one had evidently just crossed the water and was much fatigued. The wind had been blowing fresh from the north-east for two or three days. In escaping through the brambles the bird had left some of its beautiful feathers, which we took as a small compensation for the loss of the living specimen, which might have been so easily secured. On the 5th I saw some terns (the species not known) flying over the water near Landguard Fort. It would appear that these birds do not (all at least) leave this coast in the winter. I remember being the companion of Henry Doubleday when he shot some near Walton-on-the-Naze, in December, many years ago. On the 6th of Novmber I saw a flock of ten or twelve stock doves feeding in a stubble field near a wood. They were very shy, and did not permit a near approach. I may here remark that the 27th, 28th, 29th and 30th of October were beautifully bright and calm, with the exception of occasional fog. On the 28th it was very hot, yet on none of these days did a single swallow or martin, or other summer bird, come under observation. I watched closely along the sheltered cliffs facing southward, which are thickly perforated with the holes of the sand martin, without seeing a solitary individual of this or any other of our Hirundines.—*Jonathan Grub; December*, 1860.

The Red and Blue Maccaw (Ara Macao) *of Honduras.*—This maccaw is plentiful throughout the whole country, and generally to be seen in pairs, but sometimes in companies of from six to twelve. I have seen as many as thirty together about roosting time, flying towards some lofty trees situated in the forest, which no doubt they were in the habit of frequenting at night, having assembled for that purpose. They are in the habit of feeding in the maize fields morning and evening, and are not difficult of approach. If one is wounded its shrill screams attract others, and they wheel overhead, giving opportunities for fresh shots. In this way I shot three within five minutes, from the back of my mule, and without moving from one spot.

This was near Comayagua. They are strong on the wing, and high flyers. Their brilliant plumage and long tails have a splendid effect in tropical forest scenery, forming a strong contrast to the deep green of the foliage, and a brilliant addition to the landscape. I have seen them up in the pine-ridges, and recollect riding beneath a pair sitting so close together on the branch of a pine tree overhanging the road that I could have killed both at one shot. They were abundant in Tigre Island.—*G. C. Taylor, in the* '*Ibis,*' ii. 120.

The Yellownaped Green Parrot (Chrysotis auripalliata) *of Honduras.*—Very plentiful in Tigre Island, but I did not observe it elsewhere; nor did I see any large parrots after I left the coast until I arrived at Yojoa, where there is a parrot much resembling this in plumage, but rather smaller, with the yellow on the fore part of the head instead of behind. They were flying in great numbers towards their roosting-places, and passed close overhead; but it was unnecessary to shoot one, as I saw many in the town in a state of domestication. In common with the other Psittacidæ they are very noisy early in the morning and in the evening. At these times they feed in the maize fields, and are easily shot. In Tigre Island I have seen them fly so close to the house that I could have shot them from the windows. They sit on the trees like pigeons, and do not appear to be frightened by the report of a gun. When they are in the tree-tops it is difficult for any one standing beneath to perceive them, as their green plumage cannot be distinguished from the foliage. I have often stood beneath a tree full of them without being able to see one. They roost in flocks. They have favourite roosting-places among lofty trees, where they assemble just before dark, and may be seen making for these common centres in great numbers, chattering and screaming as they fly.—*Id.,* ii. 121.

Note on the Alpine Chough as observed in the Ionian Islands.—I only observed once a pair of this species in Epirus; this was in May, 1857, when I was chamois-hunting in the Acroceraunian Mountains, above Khimàra, about forty miles north of Corfu. I have since had many opportunities of observing closely the habits of this very graceful bird in the mountains of Nice and Piedmont. Often, when I have been crouched behind a rock waiting for a shot at chamois, they would settle on a point of rock or ice within a few yards of me, and hop fearlessly about, occasionally whistling and chattering, as if to inquire of each other what possible business brought me up to their haunts. I was on one occasion surrounded by a party of about a dozen of this species, which kept up an incessant noise for about half an hour, when one of them suddenly turned his head towards the sky, uttered a very peculiar croak, and the whole party immediately crouched close down on the rocks and snow. I looked up, and a golden eagle came whizzing past me with wings nearly closed, in pursuit, I think, of a marmot; the choughs immediately sneaked off, and paid me no more visits that day. I have seen a pair of these birds go through a sort of game of catchball with a small pebble, tossing it up from one to the other, and catching it in their bills. I have been informed on good authority that the Cornish chough (*Fregilus Graculus*) is not rare on Parnassus and the Pindus range, but I have never seen it in Turkey or Greece.—*Hon. T. L. Powys, in the* '*Ibis,*' ii. 136.

Occurrence of the Little Bustard (Otis tetrax) *in Essex.*—A female specimen of the little bustard was shot on the St. Osyth marshes, by Mr. Denne, of St. Clair Hall, on the 17th of the present month, and was shown to me in the flesh by Mr. Cater, the bird-preserver of Priory-street, in this town, to whom it was sent to be set up. The distal ends of the wing and tail-feathers were rubbed. Mr. Denne, who was good enough to call upon me in answer to a note of inquiry, says that he rose the bird from among the rushes on the marsh, and that it flew into some young clover, where, an hour afterwards, having returned with his gun, he shot it. It was not at all wild. Yarrell mentions three instances of this bird having been killed in Essex. Dr. Maclean tells me one was shot, also close to Colchester, at Berechurch, a few years ago. The locality in which the subject of the present notice was killed is close to Great Claston, one of the places mentioned by Yarrell. The bird measured full 18 inches, and was upwards of 10 inches from carpus to tip. — *C. R. Bree; Colchester, December* 22, 1860.

Occurrence of the Little Bustard in Suffolk.—A fine male specimen of the little bustard was caught in a rabbit-trap in a turnip field in this vicinity, on the night of the 10th of December last, or the following night, my informant not being quite certain which of the two. It was taken alive to a farmer named Merrells, on whose land it was caught, whose intention it was to have roasted it, but a gentleman from Saxmundham called upon before he had put the culinary design into execution, and saved the bird's remains for a higher destiny. It was sent to Ipswich and preserved, and in the meantime was made over to Mr. E. Garrett, of Aldbro', who has it now I believe. I believe this to be a very good neighbourhood for rare birds, but the poor people who generally obtain them are mostly ignorant of their value. — *Edward Neave; Leiston, near Saxmundham, Suffolk, January* 10, 1861.

Skins and Eggs of the Great Auk (Alca impennis). — Thinking it may be interesting to the readers of the 'Zoologist' to know who are in possession of the birds and eggs of the great auk, a bird now presumed to be extinct, it gives me much pleasure to subjoin the following list. Should any omissions or errors be detected I should be glad if any of your correspondents would favour me with the communications:—

BIRDS.	Specimens.
British Museum	2
York ditto	1
Newcastle	1
Dublin	1
Private collections in England ...	9
United States	1
Dresden Museum	1
Vienna	1
Private collections in Germany	5
France	1
Russia	1
Denmark	2
	—
	26

EGGS.	Specimens.
British Museum...	2
Lord Garvagh	2
Sir W. M. E. Milner, Bart. ...	1
Sir W. Trevelyan, Bart. ...	1
Mr. Newton	3
Mr. Champley	2
Mr. Bond	1
Mr. Hancock	1
Mr. Labrey	1
Mr. Tuke...	1
Mr. Troughton	1
Rev. H. B. Tristram	1
Mr. Walter	1
Executors of the late Mr. Salmon	1
In Ireland	2
	—
	21

—*Alfred Roberts; King Street, Scarborough, January* 7, 1861.

A Sea Serpent. — As Samuel Townsend, Esq., J.P., of Whitehall, was sailing in Whitehall Harbour, he saw, following his wake, what appeared to him (from the many descriptions he had read of the monster) to be a sea serpent about twenty-five or thirty feet in length; and being in a small boat he endeavoured to keep as respectful a distance as possible. There was, however, another boat in the harbour at the time, in which was Mr. Samuel Hingston, his brother, Mr. John Hingston (of Trinity College, Dublin), and a party of ladies. These parties also saw the huge monster; and upon raising its neck about six feet above the surface the females became greatly alarmed, when Mr. John Hingston, who is a remarkably good shot, fired at it, upon which it immediately disappeared. Mr. Townsend informed us the serpent presented a beautiful appearance, having large, brilliant scales of a yellow hue, and is of opinion it was struck by the shot fired by Mr. Hingston. It was likewise distinctly seen from the windows of Whitehall House. Mr. Robert Atkins told us he saw it the day before off Barlogue.—'*Skibbereen Eagle,' as quoted in the 'Cork Constitution' of Sept.*, 1860.

On the Discovery of Physa acuta, Drap., *in England; with Remarks on a Shell that may prove another addition to the British Physæ.* By the Rev. ALFRED MERLE NORMAN, M.A.

A DESCRIPTION, with observations and figures, of the Physa discovered by Mr. Choules, has already been sent to the 'Annals,' and will probably appear in the February number of that periodical. As, however, many conchological readers of the 'Zoologist' may not have an opportunity of seeing the former journal, the following diagnostic characters of this species and P. fontinalis are forwarded for insertion.

PHYSA ACUTA, *Draparnaud.*

Physa acuta, *Draparnaud, Dupuy, Michaud, D'Orbigny, Deshayes, Moquin-Tandon*, &c.
? Bulla rivalis, *Maton & Rackett, Montagu*, &c.

Animal.— Mantle-margin not reflected on the shell, but sending forth minute digitations, viz., four behind, consisting of three, often rudimentary, lying on the spire; the fourth longer, reflected in the angle formed by the junction of the outer lip with the body; and six in front, small, spread in the form of a fan on the columella, and too short to be seen from above. Foot shorter than the spire when the animal is crawling. Tentacles slightly thickened towards the end, and having a black central line.

Shell long-ovate, with an acute apex, thin, but stronger than that of P. fontinalis, transparent, horn-coloured. Whorls four and a half or five, swollen, with a deep suture. Length 5½ lines, breadth 2½ to 3 lines. Mouth occupying about half the total length. Pillar-lip twisted, the swelling body-whorl projecting into and contracting the mouth above. A distinct narrow umbilical chink, formed by the reflexion of the pillar-lip upon the columella.

The above description, which applies, not to the ordinary form of P. acuta as found on the Continent, but to the variety *γ. minor* of Moquin-Tandon, is drawn up from examples of the Kew Physa forwarded to me by Mr. Choules. The locality from whence the species is presumed to have been introduced into the Kew Gardens, and which is several miles distant from the latter, has been communicated to me, and having examined specimens from thence, and satisfied myself of their identity, I see no grounds for doubting the indigenousness of Physa acuta in that habitat.

PHYSA FONTINALIS, *Linneus.*

Animal.—Mantle-margin extensile and reflected on the shell; digitations large, flat and numerous, viz., five or six behind, enwrapping and surmounting the apex of the spire; and five to eight on the columella, extending half round the body, and distinctly visible when the animal is viewed from above. Foot longer than the spire. Tentacles tapering to their extremities, pale.

Shell ovate, with a blunt apex, thin, fragile, transparent, horn-coloured (rarely white). Whorls three and a half to four and a half, their suture shallow. Length 4¾ lines, breadth 2¾ lines. Mouth occupying four-fifths of the total length. Pillar-lip scarcely twisted. No umbilical chink. Outer lip forming an acute angle by its junction with the body, and descending direct from the suture.

For some years I have had a Physa in my cabinet which would seem to be specifically distinct from all yet described; and I take this opportunity of drawing attention to the form in the following description:—

PHYSA ——— ?

Shell subquadrangular-ovate, with a very blunt apex. Body-whorl greatly swollen, and mouth widely expanded. The outer lip forming a right angle at its junction with the body, and projected a short distance directly outwards before the downward slope commences. Whorls three and a half. Length 5¼ lines, breadth 3¾ lines. Mouth occupying six-sevenths of the total length.

This shell differs from that of P. fontinalis in its larger size, its form, the great development of the body-whorl, the shortness of the spire and the contour of the outer lip. Only two examples were procured, and one of these is imperfect. The examination of the animal must decide whether the claims of the shell to specific distinction are well grounded or not. The following circumstance leads me to think that the animal will be found to differ from that of P. fontinalis:—In the case of those Mollusca that have the mantle so developed as to enwrap the shell, the surface of the shell is highly polished and free from extraneous coating; Physa fontinalis, the Amphipepleæ, the Cypreæ and the Marginellæ may be taken as examples. On the other hand, the shell of Physa acuta, which we have seen has very short digitations of the mantle, is commonly more or less clothed with confervoid growth. Now, the shell of the doubtful Physa is coated with a calcareous earthy deposit, and that green Conferva so common to fresh-water shells. I am therefore led to infer that the animal differs from that of P. fontinalis in having the mantle-margin and its processes but little if at all developed.

The footpath from Oxford to West Hincksey, after passing the railway pond and railway, is bounded on either side by a ditch, in which the water-lilies (*Nymphæa alba* and *Nuphar lutea*) grow. The ditch on the right was the habitat of the above-described shell. If any reader of this paper should have the opportunity of searching for, and succeed in finding, this Physa, I should feel greatly obliged if he would favour me with *living* specimens. They should be wrapped in a little duckweed to keep them moist, and forwarded in a wooden box by post.

ALFRED MERLE NORMAN.

Sedgefield, Durham,
January 5, 1861.

The Firth of Clyde Mollusca : Errata.—The reader is requested to make the following corrections, with a pen, in the last part of the 'Mollusca of the Firth of Clyde.' P. 7238, line 4 from bottom, and p. 7239, line 3, for Gowrock read Gourock; p. 7238, line 3 from bottom, for Lamillaria read Lamellaria; p. 7239, line 14, for Allan read Arran; p. 7241, line 5 from bottom, p. 7247, line 9, and p. 7248, line 4, for Philene read Philine; p. 7240, line 7, for sepangularis read septangularis; p. 7240, line 10, for Ptilidium read Pilidium; p. 7240, line 19, for Lefroyi read Leufroyi; p. 7242, line 32, for Man read Arran; p. 7245, line 3, for rustica read oculata; p. 7247, line 12, for Amouroncium read Amouroucium.—*Alfred Merle Norman; January* 5, 1861.

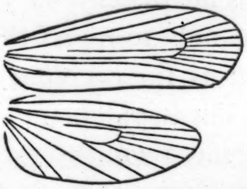
Observations on the 'Catalogue of the Lepidopterous Insects in the Museum at the East India House.' By R. F. Logan, Esq.

I HAVE read with much interest Mr. Newman's critique on the 'Catalogue of the Lepidopterous Insects in the Museum at the East India House,' and I think everyone must agree with him in regard to the intrinsic merits of the work, as throwing so much valuable light on the transformations of Eastern Lepidoptera; and also in respect to the zeal and ability with which the details have been worked out, so as to present it to us in its present form. The plates and details of transformations are invaluable; and one has only to regret that the eggs, and in *every* instance the pupæ, as well as the cocoons, could not have been represented. Why the eggs of the Lepidoptera should be so entirely ignored as they are, by all modern entomologists, is difficult to explain, since they afford, in many instances, most excellent characters of genera, and also of the larger divisions; and had we sufficient data a system might be built thereon, which might prove quite as good as that based upon the larvæ, and in many cases would no doubt prove corroborative of it.

Such systems, however, if pushed to extremes, must always prove defective, as there is no rule, even in nature, without an exception; and it is only by carefully weighing the characters derived from the transformations, in connexion with those of the perfect insects, that we can ever hope to arrive at the natural arrangement. Consequently, until we know a vast deal more of the preparatory states of exotic Lepidoptera, we can scarcely hope to solve the mighty enigma of their classification, though every step taken in the right direction places us on surer ground.

Looking at it in this light, every true naturalist must hail with pleasure the appearance of a book like the present, which, though it may be defective as a whole, yet gives us many steps in the right direction. Stirpes II., V., VI. and VII. are pre-eminently natural divisions of the Bombyces, corresponding almost exactly with the families Liparidæ, Attacidæ, Limacodidæ and Lasiocampidæ. The genus Ichthyura (Clostera ——), however, comes in unnaturally where it is placed, and must be removed from Stirps II., and placed along with Phalera and Anthena in Section ii. of Stirps IV., as these genera cannot be separated from the rest of the Notodontidæ, notwithstanding the difference in the larvæ.

Stirps I., as Mr. Newman remarks, is composed of materials which undoubtedly admit of better arrangement, and ought properly to be broken up into several stirpes of equal value with the other seven. The genus Zygæna cannot possibly, in any natural arrangement, be widely separated from Chalcosia, Procris, &c., either by the characters of the larva or imago; and these genera, along with Erasmia, Campylotes, Eterusia, Pintia, Soritia, Herpa, &c., undoubtedly form a natural stirps or family by themselves, distinct from Syntomis, Glaucopis and Euchromia, the latter of which approaches more nearly to the Chelonidæ, with which it is connected by means of some American genera, such as Lophocampa. Atteva Brucea, which is included in this stirps (page 300) belongs to the Tineina, and probably to the family Yponomeutidæ, as the accompanying sketch of its wing-venation, added to its other characters, will sufficiently show.



Stirps III. is a compound of the Chelonidæ, and a group of insects which Mr. Walker, in the British Museum 'Catalogue,' has associated with the Liparidæ, but which appears to me to belong to neither of these groups, but to form a separate and independent family, connecting the Liparidæ and Lasiocampidæ with the Attacidæ, and for which I would suggest the name of Daralidæ. They are robust, woolly insects, with broad, substantial wings, densely clothed with scales both above and below, having much the aspect of some of the aberrant Attacidæ, which they approach to some extent in the venation of the wings; but they possess the connecting bristle at the base of the under wings, which prevents their being associated with either the Attacidæ or Lasiocampidæ, while the character of their transformations will equally prevent them from being merged in the Liparidæ. There is, however, considerable diversity of structure among the species in Mr. Walker's genera; and it is quite possible that some of the insects in question, such as Tagora amæna, which wants the bristle, may truly belong to the Lasiocampidæ, to which family their transformations closely approximate.

R. F. LOGAN.

Duddingston, Edinburgh,
December 4, 1860.

Rate of Speed of Flight of a Butterfly. — Mr. Horne's calculation of butterfly speed (Zool. 7280), astonishing as it is, conveys but an imperfect idea of the actual distance traversed within the hour by the painted lady; for, taking into account the zigzag order of flight, which it doubtless maintains by sea as well as by land, it must have been winging its way at the rate of some fourteen or fifteen statute miles per hour, and that, too, against a head wind; for he says "It readily overtook the steamer, which was then making 10½ knots an hour. The wind was nearly ahead, and tolerably strong." My object in directing attention to this statement is to suggest that there must be some mistake with regard to the direction or force of the wind; for, considering what a slight and fragile insect the butterfly is, and its immense expanse of wing, our wonder is increased to amazement on hearing that it not only made head against adverse winds, but outstripped a fast boat like the 'Pera.'—*H. Hadfield; Ventnor, Isle of Wight, December* 1, 1860.

Interesting Fact in the Economy of the Genus Colias.—Mr. C. S. Gregson, of Stanley, Liverpool, the talented Secretary of the Northern Entomological Society, has discovered that the females of the genus Colias lay their eggs "*in* the seeds of clover, and especially lucerne," and are thus imported from the Continent. This is the only instance hitherto discovered of a butterfly laying its eggs either *in* or *on* the seed of a plant; and as the pod of both the species of Leguminosæ mentioned is extremely hard and wood-like, it is very difficult to conceive how the egg can be introduced through this natural envelope. In this country our two species of Colias only frequent the clover and lucerne when in blossom, so that their economy would appear to be different on the two sides of the Channel. Mr. Gregson's most important statement is communicated incidentally at page 55 of the 'Intelligencer.'—*Edward Newman.*

On the Habits of Bombyx Callunæ.—Both Mr. Stainton and Mr. Newman describe this insect as a variety of Bombyx Quercus. The following is my description of B. Callunæ, from personal observation:—B. Callunæ is found in profusion on Greetland Moor, near Halifax. *Male* 2½ to 2¾; rich dark mahogany-brown, the fore wings having a broad, transverse, semicircular bar in the middle of the wing, of a bright fulvous colour; this bar is most distinct throughout, one-eighth of an inch broad, tapering from the front; midway between the bar and the body is a white spot, surrounded with a dark ring: the fulvous bar extends across the under wing, which also possesses a margin, of the same breadth and colour: the body and head are dark above, but lighter underneath. *Female* 3¼ to 3½; of lighter colour than the male, the bar being of the same colour as in the male, but having a narrower margin on the under wing; the bar is not shown underneath the wings, each wing being half dark and half the colour of the bar on the under side. *Caterpillar.*—Natural food heath, but will thrive on whitethorn and mountain ash. It is large when full grown, being 3½ inches in length; when young it is smooth, and of the dark colour of the male insect; after the first and second changes its colour is somewhat lighter, and after the third change of skin the ground-colour assumes a beautiful velvet-black, which is observed between each double segment, whilst the latter are covered with short hairs of the fulvous colour of the bar in the imago; a few straggling long dark hairs, tipped with white, spring up over the downy segments, and along each side of the caterpillar is a whitish waving line interspersed with gray spots; the ground-colour of the downy segments is dappled gray; a row of pure white *oval* spots appear in the centre of each black segment along each side, the largest being on the segment near the head, and gradually decreasing in size. The under side of the body is greenish yellow. *Pupa* elongated egg-shaped, of a gray-brown colour, very compact, and surrounded by a soft web-like cocoon, and found on the surface of the moor, attached to the base of heath. *Egg.*—The female never flies until after copulation or depositing her eggs, which she lays around the stems of the food-plant, in May and June. The larvæ emerge in from fourteen to twenty-one days, feed during the summer and autumn, undergo three changes, and then descend to the roots of heath, where they spin a slight web, and so continue during the winter months. In the following spring they again come forth, and feed during the summer, undergoing three or four further changes of skin, and make up into pupæ during August and September. *Imago.*—In May and June of the subsequent year the perfect insect comes forth. The females of B. Callunæ possess the peculiar power of attracting the male, which is a characteristic of this family; by this means numbers of males are captured.—*W. Shipston (in the 'Intelligencer'); 3, Lower Brunswick Street, Halifax, November* 14, 1860.

Description of the Larva of Epione advenaria.—Eggs laid June 23. Oval; yellow, changing to red and then smoky. Hatched July 10: tried the larvæ with several plants; at last they began to feed on rose: afterwards procured bilberry for them, which they refused. The bilberry does not grow in the wood where the perfect insects are taken, but the common white burnet-rose abounds. At first dark brown, nearly black, with four white bands, having a granulated appearance; head black and white. After first moult dull purplish brown, with yellowish white spots (two near dorsal line the longest and most conspicuous), nearly forming a band on front of 6th segment; two similarly coloured spots on 12th segment, and an undulated lateral line of same colour, broadest behind, where it is mixed with the ground-colour, as that also is freckled with yellowish; head dull black, with two yellowish streaks. Full fed darker, especially towards the head, marbled with gray; whitish marks as before, but less conspicuous. Went into pupa among moss drawn together by a few threads, October 30. I always fed it with a smooth-leafed rose growing in the garden, as nearly like the wood-rose as I could find, and it always ate freely. It will be seen by comparing the dates that it was a long time in the larva state. I have tried the wood where the perfect insect is taken for the larva, but in vain.—*E. Horton (in the 'Intelligencer'); Wick, Worcester.*

Description of the Larva of Odontopera bidentata.—A true Geometer, but having eight claspers, the usual pairs on the 10th and 13th segments, and a pair each on the 8th and 9th segments; these last are perfectly formed in every respect, but are extremely small, and totally useless in walking: the 12th segment is slightly humped, the swollen portion crowned with two small warts, and there is a narrow oblique velvety ridge, on each side of the 12th segment, leading towards these warts: the head is decidedly but not deeply notched on the crown: the body is a good deal wrinkled transversely, and is of a dull brown colour inclining to purple, with scarcely any shading or variety of colour. I beat a considerable number of these larvæ from birch at the end of September, and on the 2nd of October they ceased eating, and, hiding themselves in moss, changed to pupæ with scarcely any cocoon.—*E. Newman.*

Description of the Larva of Iodis lactearia.—Body extremely long and slender: posture when at rest straight or curved, not uniformly the same. Head prone, with the mouth bent under, the crown deeply divided, terminating in two sharp lobes; pale brown: 2nd segment bearing two sharp-pointed approximate humps on the back; none of the other segments bear either warts or humps: body pale delicate green, with a dull red median spot, laterally bordered with yellow, on the interstices between the segments following the 3rd. Feeds on oak: full fed September 16th to October 12th. Spins a few threads across the leaves of its food-plant, and turns into a pupa in the home thus formed: it remains in the pupa state all the winter.—*Id.*

Occurrence of Cidaria reticulata in the Lake District. — Three specimens of this pretty and very distinct species were taken in August, 1856, on the border of one of the Lakes, by my friend Thomas H. Allis, who requested me to send a notice of its capture for insertion in the 'Zoologist.' Cidaria reticulata is not common anywhere; according to Guenée it is found in the Swiss Alps, Pyrenees, Hungary and the South of Russia. The larva is unknown, but probably feeds upon Epilobium, like that of C. silaceata, the species most nearly allied to C. reticulata. — *Henry Doubleday; Epping, January* 14, 1861.

Description of the Larva of Anticlea berberata. — Rests in a slightly bent posture; frequently falls when touched, and when on the ground wriggles somewhat in the manner of a Tortrix larva. Colour dingy gray-green approaching to brown. The 2nd, 3rd and 4th segments have a median black stripe, that on the 4th extending only half the length of the segment; the 10th, 11th and 12th segments have also a median black stripe, but less distinct; the dorsal surface of the segments intervening between the 4th and 10th is mottled with shades of gray, dingy green and brown: the belly is striped longitudinally, the median stripe having several darker blotches, and just before the anterior pair of claspers is a large space conspicuously darker. Feeds on Galium verum (lady's bedstraw), and is full fed about the 10th of July. I am indebted to Mr. Smithson for this larva.—*E. Newman.*

On the Economy of Epunda lichenea.—The ova, which are deposited about the beginning of October, hatch early in November; the larvæ remain very small during the winter, and are mostly hid amongst roots of grass. About the beginning of January they begin to show out by night, and to feed very ravenously on groundsel, &c., and to grow very fast. They are of a green colour, the spiracular line whitish: they still retain the green colour after several moults, when they appear in a mottled olive suit. When young they repose in the position of Sphinx Ligustri, with their head and fore legs erect, on the stems of dry grass; they will feed very ravenously on groundsel, and thrive on it well; but as the spring advances I feed them on chickweed, dock, dandelion, scabious, burnet, &c.: they feed on until May, when they assume the pupa state; I never had any remain in the larva state until June, although Merrin's 'Calendar,' in July, p. 74, says, "E. lichenea. Ragwort, foxglove, &c." I never, out of many dozens, during two or three years' experience of rearing them, saw any above the surface after May. I do not by any means think them a tender larva to rear; I have during the last two or three years reared about three-fifths of them on an average. They form a cocoon of a web-like texture, mixed with the earth; the pupæ are rather blunt at the ends: they generally lie in that state for about four months, and in September emerge. My method of rearing them is this: in a clear wide-mouthed glass bottle I put the ova, also a piece of white paper, and cover over the top of the bottle with a fine piece of gauze, so that when the larvæ hatch I can see them creep on the paper; I then put in some dry stems of fine grass and a small leaf of groundsel, so that there should not be too much refuse left; they soon leave their food and creep on the fine grass to repose, and I then remove the refuse: every evening I put in fresh food, and always remove what they leave; but after awhile, when they improve in size, I remove them to a medium-sized flower-pot, half filled with loose mould and pieces of turfy grass, under which they generally hide by day, and at night they come out to feed, when I put them in some fresh: in clearing out the refuse care must be taken not to throw away any of the larvæ which may be hid in it. By following these instructions I think there would be no difficulty in rearing these larvæ: they will breed freely in confinement, as I have tried them several times and always with success.—*J. S. Dell (in the 'Intelligencer.')*

Dianthœcia capsophila in Cumberland. — At a meeting of the Historic Society, held at St. George's Hall, Mr. C. S. Gregson exhibited Dianthœcia capsophila, *Gn.*, a species new to England. The specimens were captured by J. T. Tiltman, Esq., and J. Nicholson, Esq., of Whitehaven, on the coast of Cumberland. Mr. Gregson gave an original account of this description of insects.—*Liverpool Paper.*

[Has Mr. Gregson submitted his specimens to the inspection of any entomologist capable of deciding on the species? A specimen from this supposed new habitat has been brought to London, and is decidedly Dianthœcia capsincola. I should like to see Mr. Gregson's specimens, if convenient to him to send them.—*E. Newman.*]

Occurrence of Sophronia emortualis near Henley. — About the 12th of last July I took a fine female specimen of this insect. It has a predilection for sweets, for I took it in company with other sugar-loving Deltoides and Pyralides. Its colour is a light yellowish olive, dusted with numerous small black spots. A figure of this insect in Wood's 'Index Entomologicus' (first edition, pl. 27, fig. 768) will give a tolerable idea of its colour, though of little else. The first line seems not to be continued on the under wing. There is a crescent-shaped yellowish marking on the under wing, about half-way between the base and the tip of the wing, but it does not appear to rise on the costa, and it distinctly ceases before it reaches the middle of the wing; besides, it is in a different direction to the line on the upper wing, and if continued to the inner margin it would strike the second line. I have examined, by the aid of a common magnifying-glass, what seems to be "the posterior margin of the reniform stigma," of which Mr. Cooke speaks; but I cannot trace the rest of the marking of the stigma; and there only appears a yellowish crescent-shaped marking, which corresponds exactly with that on the under wing.— *B. H. Birks (in the 'Intelligencer'); Stonor, Henley-on-Thames; October* 17, 1860.

Re-appearance? of Agrophila sulphuralis in Norfolk. — I have to announce the capture of ten specimens of A. sulphuralis this year in Norfolk. I took them all in the last week of July and the first week of August, in very good condition, flying over a hedge of Scotch fir. I took nine of them in one place, but the other I caught nearly two miles off. I should have caught several more if it had not been for the bad weather.—*'Intelligencer,' November* 3, 1860.

[Is this reliable? Who is the captor? What is a hedge of Scotch fir?—*Edward Newman.*]

Description of the Larva of Chloëophora prasinana.—Does not roll in a ring or feign death when disturbed: smooth, cylindrical; 11th, 12th and 13th segments rapidly attenuated; the anal claspers long and spreading; all the claspers broad at the disks. Head rather large, pale green, opaque, unspotted: body yellow-green; a yellow ring just behind the head: a median double series of yellow dots disposed symmetrically: on each side below this series is a direct slender yellow stripe; and again, below this on each side are several series of yellow dots symmetrically arranged, and there is a very distinct but slender pink line on the last pair of claspers. Feeds on oak, birch or beech: it is full fed on the 18th of September, and spins a boat-shaped cocoon on the back of a leaf: when the leaf falls this little domicile of the future moth is carried by the wind hither and thither, without ever losing its attachment, until the leaf finds its winter resting-place on the ground, and there the pupa remains, still enclosed in its little yellow silken boat, until the second or third week in June, when the perfect insect emerges, and, climbing the bole of some tree, there remains until its wings have acquired the necessary rigidity; it then flies up among the branches, and spends the remainder of its life among the leaves, whence it is frequently dislodged by the beating-stick of the entomologist.—*E. Newman.*

Curious Economy of Talæporia pseudo-bombycella.—Between the 10th and 18th of June, 1860, having bred several males and females of Talæporia pseudo-bombycella, I was rather surprised to find that some of the females had laid their eggs at the bottom of the jar, for I recollected reading, in the second volume of the 'Intelligencer,' an extract from Professor von Siebold's work, entitled 'On a true Parthenogenesis in Moths,' &c., where, after remarking that the females of Solenobiæ always lay their eggs inside the case itself, he proceeds, "The females of the case-bearing genus Talæporia, which approaches most closely to the Solenobiæ, proceed in exactly the same way in escaping and laying their eggs." Why some should lay their eggs at the bottom of the jar, whilst others deposited them in their cases, I am at a loss to account, as they all received the same treatment, and were all in the same jar. Here I should observe that mine is not a solitary instance of their doing so, as the very same circumstance came under the notice of a friend who was breeding the insect at the time. On the 21st I found that the females who had deposited their eggs at the bottom of the jar had covered them with a kind of down: my first impression upon observing this downy covering was that it was intended for the protection of the eggs, but, on cutting open two or three of the cases, inside of which the eggs were deposited, I found them snugly ensconced in the midst of a quantity of the same kind of down as that I had observed placed over the eggs at the bottom of the jar. What purpose this down was intended to answer completely puzzled me until, on the 11th of July, finding several young larvæ crawling up the side of the jar, I examined them by the aid of a lens, when I found that the down (the use of which I could not comprehend) had been so placed over the eggs for the young larvæ to envelop their bodies with; for, on comparing the down round the bodies of the young larvæ with that at the bottom of the jar, I found it was precisely the same material. I also find the following communication by Mr. R. S. Edleston, in the 'Zoologist' (Zool. 5406), respecting a genus closely allied to T. pseudo-bombycella:—"Diplodoma marginepunctella. The female covers her eggs with a thick coating of fur, in a similar manner to Porthesia auriflua." And further to illustrate my assertion I send you a quill containing a quantity of young larvæ of T. pseudo-bombycella for your inspection.—*Charles Healy (in the 'Intelligencer'); 74, Napier Street, Hoxton, November* 27, 1860.

Means Employed in the Capture of a Nest of Hornets.—In my notice of the capture of a nest of hornets (Zool. 7291) I stated my intention of making known "the plan of attack" I adopted, which, with permission, I will now do. The nest was discovered the beginning of August, at which period there did not appear to be more than about twenty workers developed. It was situated in the head of a pollard ash that had been cut down, and was lying in the wood-yard at Cokethorpe Park. Wishing to obtain, if possible, specimens of Velleius dilatatus, either in the larva or perfect state, I made no attempt to take the nest for several weeks, in order that the parasite might have full opportunity of establishing itself therein. For permission to delay the capture, and make it when I thought proper, I am indebted to the kindness and courtesy of Mr. Walter Strickland, a gentleman every way worthy of the name he bears, the owner of the Cokethorpe estate, and a near relative of the late lamented and never-to-be-forgotten Hugh Edwin Strickland, whose untimely death Science has every reason to deplore. In the mean time I matured the plan of attack and made the necessary preparations, having four objects in view, the first of which was to take the nest, the second to take it without running the risk of getting stung, the third to take it at the time Velleius would be likely to be found in it, and lastly to take it without destroying the insects belonging to it, so that the work might be carried on after I had got possession of it, which of course vastly increased the difficulties that had to be surmounted. My first care was to have two dresses made, one for myself and the other for the person I engaged to assist me, which should render the wearers proof against attack, even if by any accident the whole colony chanced to rush out in an infuriated state. These dresses were easily and quickly made, the two having occupied one pair of hands but a few hours. The legs, body and sleeves were of unbleached calico; the part from the shoulders upwards of lino, in order that the wearers might be enabled to see what they were about. They somewhat resembled a couple of sacks, with legs attached to the bottom, and sleeves inserted in the proper places for the arms. Each dress was made to reach, when put on, above the head and hat of the wearer, when a string could be passed round the top and there securely tied. Gloves of stout sheepskin, dressed with the wool on, were provided, and to these short sleeves were attached, which when drawn on could be securely tied over the sleeves of the dress. Large woollen stockings were also provided, which could be drawn over the boots and over the legs of the dress, and there secured by strings. A dress of this kind gives a feeling of perfect security to the wearer, thus enabling him to go to his work with confidence, coolness and self-possession: it is thus of some value, even if no accident occurs, in capturing insects of so formidable a character as hornets, while in case of accident its value is beyond calculation. A couple of long narrow lino bags, in which to place and bring away the captured insects, were got ready, and a glazed box, in which the work of the nest could be carried on, made, as also an apparatus for introducing the chloroform, consisting simply of a short tin tube, corked at both ends, with a small opening about the middle, the tube being about the size of a quarter-ounce bottle; it had a slight handle, three or four inches in length, and was loosely filled with cotton-wool: a quantity of soft and well-tempered clay was prepared, and on the evening of the 7th of September I met my assistant, by appointment, near the "scene of action," taking with me, in addition to the articles enumerated and described above, a bull's-eye lantern, matches, chloroform, mallet, chisels, saw, a small box in which to place the bag or bags of captured insects, and a "laurel-bottle" in which to place Velleius, if we chanced to be fortunate enough to meet with a specimen. It having become sufficiently dark, we proceeded to unpack our wardrobe and dress for the parts we were respectively about to perform. This done we made our appearance on the stage; I advancing with a mass—some might think "mess" a more appropriate or expressive term—of clay in one hand and bull's-eye in the other, and my assistant with clay in each hand: this we hastily deposited upon the entrance to the nest, which we forthwith began to plaster up, but as

> "There are more things in Heaven and earth, Horatio,
> Than are dreamt of in your philosophy,"

so these insects had more places for

> "Their exits and their entrances"

than we had dreamed of or had been able to discover: the consequence was that before we could succeed in cutting off all means of egress, some twenty or thirty individuals contrived to make their escape. Now, at this juncture, had we not been provided with armour, we should of course have bolted off and left the work at its very commencement, thus increasing the difficulties of capture whenever a fresh attempt should have been made; but feeling secure we stuck to our work till we had effectually closed up every aperture, and then quietly set about capturing the individuals that had so far made their escape; this we were soon enabled to do, as they continued to buzz round us or among the grass at our feet in an apparently bewildered state, making no attempt that we could discover to attack us; there is one thing, we took but little pains to ascertain the fact, it being a matter of perfect indifference to us whether they made the attempt or not. We "bagged" the lot, and then with a piece of stick about the size of one's thumb proceeded to make an aperture through the clay we had plastered over the principal entrance, leaving the stick in the aperture by way of "stopper" till the dose of chloroform had been prepared, which was pushed in the instant the stick was withdrawn, and the aperture through which it had passed immediately closed up. In a few minutes the drug had done its work, as we were enabled to ascertain by repeatedly striking upon the trunk of the tree near the nest, the first few blows being answered by a prolonged growl from the imprisoned insects, but the responses grew more and more faint, till at length they ceased entirely, and then putting off our armour we began to make active use of the mallet and chisel. From the decayed state of the tree the nest was soon reached, when the insects were found lying helplessly drunk underneath it, except a few which were in the same state between or on the combs; it was among the latter, immediately under the crown of the nest, the specimen of Velleius was discovered, the capture of which was recorded in my late notice (Int. viii. p. 188). It now only remained to "bag" the insects, to remove the nest to the interior of the glazed box, to convey it to its place of destination, to fix it when there in the place prepared for it, to suspend the nest properly inside it, to place food and building materials within it, and then to introduce the colony, which consisted of about one hundred individuals; all of which was accomplished without difficulty or the occurrence of any accident. The insects, which had recovered from the effects of the chloroform by the time the box was ready, were, partly by persuasion and partly by force, passed into it through an aperture made for the purpose, and which was afterwards closed with a cork. The aperture by which they were allowed to pass out, through an opening in thew indow, was closed with a sliding door, and this was not opened till all were found to have ascended into the nest, when the slide was withdrawn, and liberty was given them to go out and come in when they pleased. On entering the box they made themselves perfectly at home at once, pitching immediately into the good things I had provided for them, and as soon as daylight appeared setting to work as quietly as though no change whatever had taken place either in their circumstances or situation.—*S. Stone (in the 'Intelligencer'); Brighthampton, October* 7, 1860.

The 'Annual' for 1861 *: " New British Coleoptera."*—

Bradycellus harpalinus, Dej. I believe I was the first to record the distinctions of this species (Ent. Intel. viii. 59), but not having the advantage of a correspondence with our continental correctors I was unable to name it. The above seems to have escaped the notice of the compiler of the references, although a similar record by me in last year's 'Intelligencer' was dignified with a place in the 'Annual' for 1860. I ought not, however, to be astonished at the omission, as I have since that time, in the natural order of events, become included in the list of entomologists obnoxious to Mr. Janson (*i. e.* eleven-twelfths of the known coleopterists),—a calamity which I of course deplore, but survive. I remember in May last showing the species in question to that gentleman, who then professed ignorance of its name. I possessed an example, and had remarked its peculiarities, before the 'Annual' for 1860 was published; but my attention was more particularly drawn to it by the remarks in Dr. Schaum's paper, conspicuous, by the way, for the very positive nature of its statements, and a certain lack of courtesy to the authorities corrected.

Bagöus nodulosus, Schön. With regard to this species I must acknowledge and correct a mistake (Zool. 7266). The penultimate sentence of my notice should have been, "B. binodulus has on each elytron *two* knobs, and B. nodulosus only *one*." I can only account for the error by the unorthodox way in which my figures are generally written: had the words been at full length the printer could not have made a mistake. I did not see the November number of the 'Zoologist' until my attention was drawn to it by the quotation in the 'Annual,' otherwise I should have corrected it at once. Mr. Janson's remarks as to the size of the species are correct, but quite unnecessary, since it was the large size of my insect that induced me at first to refer it to B. nodulosus, which Schönherr states is nearly as large as B. binodulus. Any strictures, however, of this kind might have been avoided if Mr. Janson had condescended to examine the specimen when I exhibited it at the Entomological Society. The extract also, from the 'Proceedings,' is not exactly in my words. I exhibited the insect as "certainly a new British species, which I had not yet had an opportunity to refer to its specific name." The objection taken by Mr. Janson to my statement that the elytra of B. binodulus were "merely punctured" is not worth much, my obvious meaning being that they were so in comparison with the rougher granulations of the species I described: my words were in accordance with Schönherr's description, and my insect agreed in every point with his B. nodulosus. The other differences between the two species remarked by me were not referred to, because they could not be contradicted I presume. I have no doubt but that the species recorded by me is really the Bagöus nodulosus of Schönherr, and I have opinions to this effect from gentlemen on whose authority I should place reliance in preference to that of our self-constituted judge, even if the latter had seen and examined my specimen, a somewhat necessary preliminary to a correct verdict, but which he did not take the trouble to do when he had the opportunity. The prejudice and want of courtesy displayed in the articles on Coleoptera in the 'Annuals,' and the way in which they have been ingeniously distorted into a vent for personal ill-feeling and self-glorification, must, I think, give foreign entomologists, and the public in general, a curious but erroneous idea of the state of the science in England.—*E. C. Rye;* 284, *King's Road, Chelsea, S.W.*, *January* 8, 1861.

Beetle Musicians.—During our ride home [in Tobago] I was startled by hearing what I fully imagined was the whistle of a steam engine; but I was informed it was a noise caused by a beetle that is peculiar to Tobago. It is nearly the size of a man's hand, and, fixing itself against a tree, it commences a kind of drumming noise, which gradually quickens to a whistle, and at length increases in shrillness and intensity, till it almost equals a railroad whistle. It was so loud that, when standing full twenty yards from the tree where it was in operation, the sound was so shrill that you had to raise your voice considerably to address your neighbour. The entomological productions of the tropics struck me as being quite as astonishing in size and nature as the botanical or zoological wonders. There is another beetle, called the razor-grinder, that imitates the sound of a knife-grinding machine so exactly that it is impossible to divest oneself of the idea that one is in reality listening to some "needy knife-grinder" who has wandered out to the tropical wilds on spec.—'*Romance of Natural History*,' *by P. H. Gosse*, p. 29.

Haunts of Leptinus testaceus in Scotland. — Until 1857 this interesting beetle had occurred to British coleopterists only, I believe, in single specimens, and at considerable intervals of time. In the last week of August of that year I was fortunate enough to pick up, with the help of a young friend, and within the compass of a square yard, twenty-three individuals, the majority of which have long since found their way into the cabinets of correspondents. While walking through a damp wood in Berwickshire, a few chips that had lain for twelve or eighteen months invited my inspection; and in the hope of meeting with Quedius lateralis and Q. attenuatus I commenced a search. After turning a chip or two, and slightly disturbing the heap, I observed a creature issue forth at some distance from my hand, and, careering for a second or two with many-twinkling feet in the bright sunshine, vanish beneath the *débris*, again to return and display its yellow silky sheen, convincing me it was no vulgar mite, as for a moment I supposed, that had been startled from its propriety. The heap was moderately dry, being drained by the gallery of a field-mouse or a mole, out of whose subterranean abode several specimens were extracted. Two or three individuals had attached to their legs what I regarded as the larvæ of an Acarus. The spot was visited the two following years, but without success, the habitat having been destroyed by the tread of cattle. At a short distance from it, however, I took a single specimen on a very unfavourable day in September last, amongst decaying leaves and twigs, in company with species of Catops and Megarthrus. This note, along with the information that Mr. Scott will probably furnish regarding the locality of his late capture, may possibly help some young collector to the possession of what I presume is still a desideratum in many a cabinet.—*Robert Hislop; Blairlodge, Falkirk, November* 24, 1860.

Occurrence of Ammœcius brevis at Southport, and Notes on other Coleoptera. — In the month of May, 1859, I enjoyed the satisfaction of a week's collecting in the sand-hill district near Liverpool, extending my researches to Southport. This last-named station proved by far the most productive I had met with. It was that propitious moment when the insect world is assuming its most active phase of existence, and the influence of a noon-day sun had called forth an infinite number of Coleoptera to bask on those white and gleaming slopes; not only affording me some rare acquisitions, but matter for interesting observation with regard to the habits of species. I was particularly pleased in noting that lovely insect, Carabus nitens, as he appears at home. Standing in the middle of one of those damp spots in the heart of the sand hills, which it appears most to affect, the eye, attracted by the metallic gleam, could discover a dozen or more individuals, each standing perfectly motionless at the edge of his burrow, a little heap of sand newly raised indicating the point of exit. So long as the sun continued to shine they quietly submitted to capture, but the moment a passing cloud obscured it they retreated at once to the earth. Skirting situations like these among the procumbent stems of a species of Salix very common in maritime localities, I took, by a vigilant chase, several specimens of Tachypus pallipes. This insect, like that before mentioned, I could never succeed in taking but when the sun was shining. Climbing the smooth and yielding surface of the sand, I met here and there with a specimen of a small steel-blue Saprinus, which has proved to be the rare S. quadristriatus. Drifted by the sea-breeze and entrapped in hollows of the sand, I found innumerable specimens of Ægialia arenaria: of this species, the usual concomitant of sand hills, I furnished myself with an ample supply for distribution. On my return home, while occupied in setting these last, and reviewing the collective result of my efforts, I noted one specimen which, though casually included with the rest, when viewed with the glass presented a form and characters dissimilar to anything known to me. By favour of my friend Dr. Power, who at once decided it to be a new addition to our British fauna, the specimen was handed to Mr. Waterhouse for determination. It has proved to be Ammœcius brevis of Erichson, a genus not hitherto recorded in our lists, and nearly allied to Ægialia both in habit and appearance. Early in May of the present year (1860) I paid a second visit to Southport Sands, with special reference to the insect whose capture has furnished the immediate occasion of the present remarks. On this occasion I was fortunate enough to procure four more specimens, and I have little doubt, after this hint, that the zeal of our northern coleopterists will render the species accessible in the future. — *A. Haward; Gloucester Road, Croydon.*

Luminous Beetles.—A sight in every respect similar, though doubtless dependent on a different species, occurred to me in ascending the river Alabama from the Gulf of Mexico. As the steamer passed booming along under the shadow of night, the broad belt of reeds which margined the river was thronged with myriads of dancing gleams, and the air was filled with what looked like thousands of shooting stars. Beautiful, however, as these spectacles were, I had not known what insects could effect in the way of illumination till I visited Jamaica. There, in the gorgeous night of a tropical forest, I saw them in their glory. In the glades and dales that open here and there from a winding mountain road cut through the tall woods, I have delighted to linger and see the magnificent gloom lighted up by multitudes of fireflies of various species, peculiarities in whose luminosity—of colour, intensity and intermittence—enabled me to distinguish each from others. I delighted to watch and study their habits in these lonely spots, while the strange sounds, snorings, screeches and ringings, of nocturnal reptiles and insects, were coming up from every part of the deep forest around, imparting to the scene a character which seemed as if it would suit the weird hunter of German fable. There are two kinds in particular, of larger size than usual, which are very conspicuous. One of these is more vagrant than the other, shooting about with a headlong flight, and rarely observed in repose. Its light appears of an orange hue when seen abroad; but it frequently flies in at open windows, and, when examined under candle-light, its luminosity is yellow: when held in the fingers the light is seen to fill the hinder part of the body with dazzling effulgence, which intermits its intensity. The other is more commonly noticed resting on a twig or leaf, where it gradually increases the intensity of its light till it glows like a torch; then as gradually it allows it to fade to a spark, and become extinct; in about a minute, however, it begins to appear again, and gradually increases to its former blaze; then fades again; strongly reminding the beholder of a revolving light at sea. The hue of this is a rich yellow-green; and sometimes a rover of the former species will arrest its course, and, approaching one of these on a leaf, will play around it, when the intermingling of the orange and green lights has a most charming effect. In the lowland pastures of the same beautiful island there is another insect abundant, of much larger dimensions, which displays both red and green light. On the upper surface of the thorax there are two oval tubercles, hard and transparent, like "bull's-eye" lights let into a ship's deck; these are windows out of which shines a vivid green luminousness, which appears to fill the interior of the chest. Then on the under surface of the body, at the base of the abdomen, there is a transverse orifice in the shelly skin, covered with a delicate membrane, which glows with a strong ruddy light, visible, however, only when the wing-cases are expanded. During the dark nights it is most interesting to mark these large beetles flying along over the herbage at the edges of the woods and in the pastures; the red glare, like that of a lamp, alternately flashing upon the beholder and concealed, according as the insect turns its body in flight, but the ruddy reflection on the grass beneath being constantly visible as the animal leisurely pursues its course. Now and then the green light from the upper "bull's-eye," which seems to be under the insect's control, is displayed, and then again the mingling of the two complementary colours, red and green, in the evolutions of flight, is indescribably beautiful.—'*Romance of Natural History,' by P. H. Gosse*, p. 35.

Habits of Sagra.—I wonder if Mr. Baly is aware of the use of the large hind femora and strong curved tibiæ of Sagra? As he may never have seen Sagra living, I will give him my experience of that beetle. I speak of S. femorata, which is common in the South of China, though I never saw it north of Shanghai. It comes nearest Eulmolpus, and, like that resplendent genus, it is indolent and sluggish, delighting to perch itself in the sun on a topmost twig; and the use to which it puts its kangaroo legs is simply to enable it to obtain a firm grasp of the stick in its elevated position. There it remains, looking very tempting and pretty; but no sooner is the hand stretched forth to secure the prize than down drops Sagra in the tangled bush, and may no more be discovered than the much-talked-about needle in the bundle of hay. When all again is quiet it again begins its slow laborious ascent. The motto of Sagra is evidently "Excelsior."—*Arthur Adams.*

The Hexagonal Form of the Cells of Hive Bees. — Mr. Hawkes (Zool. 7292) has endeavoured to prove that these cells are not as above stated. Let Mr. Hawkes examine one of the small honeycombs often made by bees in wet weather, or by weak hives, and he will soon be convinced that the theory of pressure to alter the form is far fetched. As he justly says, the hive-bee honeycomb is one of the most wonderful things in the volume of Natural History. I regret to see sometimes (not in Mr. Hawkes's case) that an over zeal for new theories and new discoveries often leads men to go out of the right direction; and I think in the case of these wonderful insects, the bees, this too often takes place. It has been clearly proved that the hexagonal form of the cells cannot be improved, and that this form has the greatest economy of space, the greatest symmetry as well as strength, and perfect adaptation to its purpose, more than any other which man could conceive. The bees, as Virgil said of old, fully display, in this, "partem Divinæ mentis." In illustration I quote the words of the late William Kirby, in his work entitled 'Monographia Apum Angliæ,' where, in describing some of the curious sorts of wild bees, he says:—"Who is it that instructs them to bore a fistular passage underground, or in the trunk of a tree, for the reception of their nests? What rule do they take with them to the shrub from which they borrow their materials to assist them in meting out their work, by which they cut some pieces into portions of an ellipse, others into ovals, others into accurate circles, and to suit the dimensions of several pieces of each figure so exactly to each other? Where is the architect who can carry, impressed upon the tablet of his memory, the entire idea of the edifice he means to erect, and, without rule, square, plumb-line or compass, can cut out all his materials in their exact dimensions, without making a single mistake or a single false stroke? And yet this is what these little animals do invariably, and thus teach us how much more wonderful and certain instinct is than all the efforts of *our* boasted reason, which cannot attain certainty, and which these creatures manifest spontaneously, working at all times with unerring precision. What is this teaching but the manifestation of the eternal wisdom of the Creator infinitely diversified?" I recommend Mr. Hawkes to extract a small piece of empty comb, of which there is abundance this most untoward season, from one of his swarms of 1860, and where no pressure can have existed, and he will not fail to be convinced that the new theory of a different shape than hexagonal to the hive-bee cell will be found completely in error. —*H. W. Newman; Hillside, Cheltenham, December* 4, 1860.

Notes on the Family Phryganidæ. By Edward Parfitt, Esq.

The following are extracts from my notes on the appearance and continuation of some of those species of Phryganidæ observed and taken by me in the neighbourhood of Taunton, Somerset, in 1860. They follow in order of date as taken.

Brachycentrus subnubilus. First observed April 26, and disappeared about the 10th of May. Common along the river.

Cyrnus pulchellus. May 6 to June 24.

Agapetus funereus. Male and female, May 9.

Notidobia ciliaris. May 12, very common. In addition to the characters given by Stephens and Dr. Hagen, add "*a white* line along each side of the abdomen." Continues to end of June.

Sisyra fusca. May 19.

Sericostoma Spencii. May 23 to the end of June, common. Add to Dr. Hagen's description, "Tibia slightly spinose inside." This species has also a white spot at the inner angle of the wings, in some specimens more conspicuous in life. The males and females are equally common, which is not the case with many species.

Silo pallipes. May 24, not common.

Phryganea grandis. Rare. May 24 to June 20.

Tinodes luridus? May 24.

T. pallescens. May 24 to August 28 *passim*.

Limnophilus pellucidus. May 24, not common.

Leptocerus annulatus? This has been compared by Mr. M'Lachlan with the specimens in the British Museum; and he, with myself, is doubtful if this be the true L. annulatus, but is inclined to think it a new species very nearly allied, as it differs somewhat from the types. Taken May 30.

Polycentropus trimaculatus. May 31, common.

Limnophilus rhombicus. May 30, common.

Leptocerus Auricula. May 31.

Limnophilus marmoratus. Bred. June 3, very common.

L. hirsutus. June 1 to June 23, not common.

Mystacides nigra. June 1.

Leptocerus aureus. June 1, rare.

L. dissimilis. June 1 to August 6, scarce. Add, "Abdomen pale green in the female, brown in the male".

Mystacides quadrifasciatus. June 1 to October. I have taken a variety of this with pale concolorous wings.

Odontocerus albicornis. June 2.

Agapetus ciliatus. June 2.

Limnophilus marmoratus? A rather remarkable variety, with entirely green abdomen, or in some slightly clouded with a whitish line along the spiracles; the anal appendage broadly ovate at the base and very acuminate, running out into a longish spine ciliated on the margins. June 3.

L. vitratus? In addition to Dr. Hagen's description, add, "The apical lobe of the last segment of the abdomen set with decumbent black bristles."

Leptocerus nervosus. June 3, not rare.

Rhyacophila dorsalis. Rare, June 5.

Hydroptila pulchricornis et tineoides. Taken *in cop.*, June 14. (See Zool. 7111, for further remarks on these so-called species). There appear to be two broods, as they disappear after about a month, and towards the end of August and beginning of September they are again seen in some numbers, though not so numerous as the first brood.

Leptocerus tineoides. June 15.

Mystacides ater. Stephens's description of this species is very correct. Dr. Hagen does not appear to mention it; if he does, there is some confusion, and it seems difficult to clear it up. June 15, scarce. But more of this anon.

Setodes elongatus. Bred. June 15. Dr. Hagen says, "Case like that of Mystacides, according to Kolenati." The case of S. elongatus is small, slightly curved, and with the larger end straight, not curved outwards like the mouth of a trumpet; it is composed of a horn-like matter—similar to the polypidoms of zoophytes, the genus Tubularia for instance—mixed with a very fine silk-like substance, which gives the case a transversely striated appearance under a lens.

Leptocerus bimaculatus ? This was examined by Mr. M'Lachlan, who says it is not L. bimaculatus, and, after hinting that it may be L. perfuscus, suggests that it is probably a new species. It certainly is not L. perfuscus. June 19, scarce.

Goëra capillata. June 19.

Agraylea multipunctata. June 20, one specimen only.

Polycentropus subpunctatus ? June 20, not common. A variety with the nervures of the wings concolorous, and the wings themselves nearly black, led me, at first, to regard it as a new species.

Leptocerus bifasciatus. This beautiful and very scarce species was taken by a rapid stream near the old Roman bridge, Taunton, July 8.

L. albifrons. July 23, scarce.

Limnophilus vittatus. August 27, scarce.

Anabolia nervosa. September 18 to October 24. I met with a curious variety of this species, a male and female, the male having the inner apical portion of the anterior wings cut out, similar to those of Limnophilus pellucidus; the female has the ordinary wings of the species. If I had captured the male alone I might have been led into error, but taking them *in cop.* settles the question I think.

Beræa albipes. September 19.

Halesus digitatus. October 2, not common.

Limnophilus auricula. October 12, not common.

I may mention, in conclusion, that I have four new species of this order, at least they are not in the British Museum. They are in the hands of Mr. M'Lachlan, to be forwarded to Dr. Hagen for his opinion. I have also three species of the genus Baëtis, and one of Cœnis, not described by Stephens. I believe these genera are very imperfectly known, at least the British species.

EDWARD PARFITT.

Devon and Exeter Institution, Exeter,
January 20, 1861.

Habitats of Sea Anemones.—To those of your readers who are interested in and collect sea anemones it may be useful to give a locality for Actinoloba Dianthus not mentioned in Mr. Gosse's charming work on 'British Sea Anemones.' I found this beautiful species in October, in considerable numbers, adhering to the large boulders and stone-work beneath the unfinished pier at Lowestoft, in company with quantities of Alcyonium digitatum of all sizes. The tide was not low enough for walking, but by taking a boat and rowing along the base of the pier, as the tide receded, we found them anchored to the stone-work. None were found on the harbour side of the finished pier, but on the ocean side of it they were plentiful. There was great variety in size,

some being very large and full blown, others small and budding. Of the varieties described by Gosse were brunnea and rubida. I may also mention, for the benefit of any lovers of sea anemones who may visit the Isle of Wight, that of Actinia Mesembryanthemum (the variety fragacea) Freshwater Bay is quite a "strawberry bed." There also may be found good specimens of other varieties, such as tigrina, olivacea, hepatica, &c. Bunodes Ballii and Anthea Cereus are also to be found there; this last is also very abundant between Shanklin and Sandown, where also may be found Sagartia Troglodytes, S. bellis, and, though not very abundantly, Tealia crassicornis. This last, and S. Troglodytes in several varieties, are also found on the shores of the Solent, opposite the Isle of Wight.—*J. Pemberton Bartlett.*

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

January 7, 1861.—J. W. DOUGLAS, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—'Tijdschrift voor Entomologie,' Vol. iii. Part 4; presented by the Entomological Society of the Netherlands. 'Abhandlungen de Mathemat-Physikalischen Classe der Koeniglich Bayerischen Akademie der Wissenschaften,' Vol. viii. Part 3. 'Denkrede auf Alexander von Humboldt;' 'Sitzungsberichte der Königl. bayer Akademie der Wissenschaften zu München,' 1860, Part 3; by the Academy. 'Kongliga Svenska Fregatten Eugenies Resa omkring Jorden Insekter,' Parts 2 and 3; by the Académie Royale des Sciences de Stockholm. 'Papers and Proceedings of the Royal Society of Tasmania,' Vol. iii. Part 2; 'Report of the Royal Society of Tasmania' for 1858; by the Society. 'Proceedings of the Royal Society,' Vol. x. No. 41; by the Society. 'British Butterflies: Figures of every Native Species, with an Account of Butterfly-development, Structure, Habits, Localities, Mode of Capture and Preservation, &c.,' by W. S. Coleman; by the Publishers, Messrs. Routledge, Warne and Routledge. 'Monograph of Halticidæ in the Collection of the British Museum,' by the Rev. Hamlet Clark, M.A., F.L.S., Physapodes and Œdipodes, Part 1; by the Author. 'Exotic Butterflies,' Part 37; by W. W. Saunders, Esq. 'The Zoologist' for January; by the Editor. 'The Journal of the Society of Arts' for December; by the Society. 'The Athenæum' for December; by the Editor. 'Catalogue of British Coleoptera,' by G. R. Waterhouse, Esq., F.Z.S., &c., Sheets M and N, two copies; by the Author. 'The Entomologist's Annual' for 1861; 'The Entomologist's Weekly Intelligencer,' Nos. 218 to 222 inclusive; by H. T. Stainton, Esq.

Election of a Member, &c.

Francis A. Jesse, Esq., of Lanbedr Hall, Derbyshire, was elected a Member; and W. F. Kirby, Esq., of 25, Albert Street, Mornington Crescent, and H. W. Bates, Esq., of King Street, Leicester, were elected Subscribers to the Society.

Exhibitions.

Mr. S. Stevens exhibited some splendid Papilios and other Lepidoptera sent from Ceram by Mr. Wallace.

Mr. Shepherd exhibited a fine dark variety of Hemerophila abruptaria, taken near London.

Mr. Bond exhibited some fine varieties of Dictyopteryx uliginosana and Gelechia subdecurtella from the Cambridgeshire fens; also a fine series of Gracillaria stigmatella, one example being nearly pure white.

Mr. M'Lachlan exhibited an example of Setodes interrupta of Fabricius (*non* Stephens), taken near Taunton by Mr. Parfitt, in 1859; and remarked that this phryganidous insect may be considered as new to Britain, for although Fabricius, in 1792, indicated it as occurring in England, no one appears to have rediscovered it until now.

The Rev. H. A. Pickard exhibited a specimen of Gonepteryx Rhamni, *var.* Cleopatra, taken by John Fellerton, Esq., at Thyrbergh Park, near Rotherham, on the 27th of June, 1860, being the first recorded British example of this beautiful variety.

Mr. Scott exhibited some specimens of Mycetophagus 4-guttatus, *Müller*. The species had been lately found in decaying pea-haulm, by Mr. Douglas and himself. In all about fifty specimens had been secured.

Dr. Knaggs exhibited some eggs of Geometridæ from which hymenopterous parasites had emerged.

Mr. Westwood pronounced these parasites to be Platygaster Ovulorum.

Mr. Gorham exhibited examples of Micropeplus staphylinoides, *Marsham*, and M. Margaritæ, *Duval*, and made the following remarks:—"I believe under the specific name of staphylinoides two species of Micropeplus have been generally mixed in British collections; they are the true M. staphylinoides of Marsham, and M. Margaritæ of Duval. I have therefore attempted to point out the characters by which these species may be separated. In M. staphylinoides the elytra are scarcely a third longer than the thorax; their sides are parallel, and the fourth segment of the abdomen is armed with an acute prominent crest: in M. Margaritæ the elytra are longer, being nearly half as long again as the thorax, their sides rounded, and the disk more convex than in M. staphylinoides; the fourth segment of the abdomen with a small and not conspicuous tubercle. I also beg to call attention to the sexual characters which M. Duval has pointed out, but which appear to have escaped the notice of former authors, viz., the existence of a tooth on the tibiæ of the male. In M. staphylinoides the head of the male is produced into a tooth in front; that of the female is rounded: in M. Margaritæ the head of the male is more acutely toothed; that of the female rounded. In this respect they may both be separated from the nearly-allied species, M. longipennis, *Kraatz* (M. staphylinoides, *Ktz.*, olim, nec *Marsh.*), which has the head rounded in front in both sexes."

Mr. Ellerton exhibited some pupa-cases of Cerura vinula, showing the thin membranous lining alluded to at the last Meeting of the Society (Zool. 7335).

Mr. Westwood remarked that these delicate white pellicles, seen attached to the inner surface of the cast skins of lepidopterous pupæ, were probably identical with the skin said by Mr. Curtis to be cast by the death's-head moth after assuming the perfect state. A more careful examination of these pellicles was, however, necessary, as the question really was whether the Lepidoptera on emerging from the pupa cast one or two envelopes,—whether, like the Ephemeræ, they were enveloped in two distinct skins, as indeed the statement of Mr. Curtis implied, thus partially resembling the coarctate Diptera, in which, however, the outer skin of the pupa is only the hardened ultimate skin of the larva; or whether the limbs of Lepidoptera are not respectively enclosed in a single sheath, the outer surface of which becomes hardened by a glutinous secretion, by which the whole are fastened together into a solid mass.

Mr. Fereday exhibited a living larva, apparently of Triphæna pronuba, which had been found, a short time previously, lying on the snow with which the ground was then covered, and frozen quite hard, but on being removed to a warm room quickly became active.

Mr. Waterhouse exhibited a new British species of Scydmænus, and a series of the British Euplecti, and read some notes on their differential characters.

Mr. Scott exhibited a new species of Coleophora, and read a description of it, proposing for it the specific name of Wilkinsoni, the insect having first been discovered by Mr. T. Wilkinson, at Scarborough.

Mr. M'Lachlan observed that he had found the larva-cases of this species at Dulwich Wood.

How to cure Grease in Insects.

Dr. Wallace read the following paper :—

"The Rev. Joseph Greene has given us (Zool. 6692) his method of curing grease in insects. Other entomologists extract the interior of greasy bodies, with very fine scissors, at a subsequent period after setting, whenever signs of grease are evident. I propose another method, more economical of time, equally certain in action.

"Small greasy insects—as Tineidæ, Tortricidæ, Crambidæ, small Geometræ, Pyralidæ and Bombycidæ—I soak entire in benzole. Of all large insects which may even be suspected of grease, having disarticulated the bodies from the thorax, and labelled according to the plan suggested by Mr. Greene—either of a year's capture or of many years' collecting—I expose such (bodies) to the heat of the fire, on a cork placed at about six inches distance; and if the grease has previously run into the thorax and spread over the wings, such parts must be further soaked in the manner above recommended for the smaller insects. By exposure on a cork to the fire, the grease, being liquefied and permeating the body, shows itself on the exterior, causing softening and a dark discoloration; if no such action takes place there is no amount of grease in the interior of the body, and no need to slit open the body as hereafter described. Simple soaking for a few days in benzole will remove the small portion of grease which may be deposited on the exterior of the insect.

"When discoloration and softening ensue, I slit open the body on the under surface and soak in benzole for twenty-four hours; then, taking say a hundred or more bodies, I boil them as rapidly as possible in about an ounce or more of benzole (adding a little from time to time) in a water bath, which may be easily composed of a saucepan containing water, in which is placed the covered jar containing the benzole and the bodies. In this process that portion of benzole which had previously soaked into the interior of the slit body, having been brought into close relation with the grease so as to dissolve it, is very readily volatilised; bubbles of gas are seen to effervesce rapidly from the body, currents of boiling benzole rush into and out of the slit body, and the grease is literally washed out. This may be best observed by boiling a single body with a drachm of benzole in a test-tube over a spirit lamp: but if the body be soaked, and not boiled, the benzole in the interior of the slit body dissolves the fat; but, while drying, it percolates slowly through the substance of the body, and deposits again in the interior nearly the whole of the grease previously dissolved that portion only being got rid of which, being on the exterior layers, is in immediate relation with a surrounding stratum of benzole. The quicker the boiling, the more readily is the grease washed out, but the greater the volatilisation of benzole.

"The bodies are now removed from the hot liquid, washed with fresh benzole, dried on blotting paper, and if exposed again to the action of heat will show no signs of grease. It will be found necessary to test a single body from time to time, the period necessary to extract all the grease varying according to the rapidity of boiling, the strength and purity of the benzole, and the amount of grease in the bodies. The bodies are finally attached each to its corresponding thorax with Canada balsam, liquid glue or gum.

"I think I may safely state that insects thus treated will never grease again.

"This process may be performed in the winter months, when all greasy insects can be cleaned together. It is economical in time and labour, and thorough in its action: it interferes very little with the beauty of the insect.

"That the body is the sole seat of grease is shown by taking a fresh-dried specimen of an insect liable to grease, as Nonagria Typhæ. Disarticulating the body, expose both it and the thorax and wings to the same amount of heat; the body will quickly discolour; the rest of the insect will remain unchanged. Bodies, therefore, should be always heated, while the head, thorax and wings are as yet free from signs of grease. If any doubt occurs as to the question of grease in an insect, its presence is readily tested by the exhibition of the body on a cork placed about six inches distant from the fire. Only very greasy bodies need be boiled; simple soaking will suffice for slight cases. When bodies are very small the passage of a pin breaks them unless soft with grease; I therefore prefer to soak the whole insect as above described."

Dr. Wallace subsequently boiled some greasy bodies of Nonagria Typhæ in benzole contained in a test-tube over a spirit-lamp, and exposed the bodies thus boiled, and others which had not been subjected to the process, to the heat of the fire: the former were unaffected by it, but the latter were rapidly discoloured and became soft.

Mr. Westwood communicated some notes on the time of appearance, in the perfect state, of Acherontia Atropos, furnished by Mr. W. Groves.

Mr. M'Lachlan read a paper intituled "Notes on the Genera Mystacides and Setodes, in the second part of Kolenati's 'Genera et Species Trichopterorum,' with reference to the Species described in the works of Messrs. Curtis and Stephens."—*E. S.*

Frozen Rats. — As two gentlemen were skating on the river Wharfe, near Otley, they discovered six dead rats partially embedded in the ice. The heads of the animals were all pointed in one direction: they seemed to have been stopped in their course by the intense frost. They appeared at the time of their stoppage to have been crossing from the Farnley to the Otley side of the river: one of them, like a brave general, had taken the lead in the fatal enterprise, and the second was a little in advance of the rest, which were following closely up in couples.—*Local Paper.*

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